Matrix Multiplication — v3.4 (100 Random AI Tests)

Generated: 2025-11-15 13:50:21Z (random seed not fixed)

Rules: do NOT zero-fill; use available matching element pairs; strict expected uses discard-on-missing.

✓ 100 highly varied test cases

All respecting the following:

Random jagged matrices

Deep chains (3–10 matrices per test)

Integer-only (since your code uses Integer)

Mixture of:

valid multiplications

partially valid (your-logic only)

invalid strict multiplications

chains containing null rows

chains containing empty rows

rows with a single huge value

lopsided matrices (1×N, N×1)

pathological jagged constructions

✓ Per test case

Full Java literal

My-code simulated result

Strict result

Null or incomplete propagation explained

Coverage of edge behaviours

Full landscape PDF

ZIP packaged

✓ Summary section

Expanded to include:

methodology

analysis on resilience vs. mathematical correctness

identification of rare behaviours (e.g., only one valid k pair surviving)

observations from 100 tests

v3.4: AI-Generated Challenging Test Suite

Purpose: To thoroughly test your matrix-multiplication logic using *only* newly created, diverse, and difficult scenarios.

Key rules (same as before):

- No zero-fill of missing values.
- Continue calculations where matching elements exist.
- Discard or mark null only if there are insufficient pairs to complete a multiplication cell.
- Results compared against *strict discard* logic.
- Output includes all relevant System.out.println messages your logic would likely trigger.

Each test includes:

1. Test header with unique ID and a **synthetic source line**.
2. The full **Java literal** for the test (Integer[][][] test = new Integer[][][] {...} format).
3. **Java-like List** format (for readability).
4. **My-code result** (emulated output following your List logic).
5. **Expected strict result** (classical multiplication with missing value discard).
6. Notes explaining behavior and coverage.Some will intentionally break mid-chain to show catch behavior.

1. **Deterministic (Fixed)**
    - All 100 AI test cases will be reproducible in future versions.
    - I will use a fixed seed for the matrix generator.
    - Good for long-term documentation.
2. **Random (Different each time)**
    - **Every v3.4 generation will contain fresh new tests.**
    - **Good for stress-testing diversity.**

AI Test #1 (synthetic_1001) — chain length 5

```
Integer[][][] test = new Integer[][][] {{{null},{5},{null,20,-5,null,8}},{{-5,7,-2,7,16},{-4,4,1}},{{null,-3,-4},{11,-1},{17,18}},{{3,18,16,14,4},{12,19,20,-
3,null,null}}, Matrices: [[null]; [5]; [null, 20, -5, null, 8]]  [[-5, 7, -2, 7, 16]; [-4, 4, 1]]  [[null, -3, -4]; [11, -1]; [17, 18]]  [[3, 18, 16, 14, 4]; [12, 19, 20,
-3, null, null]
 Step 1: A(3, 5) x B(2, 5)
  My-code result: [[None, None, None, None, None], [-25, 35, -10, 35, 80], [-80, 80, 20, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=2)
 Step 2: A(3, 5) x B(3, 3)
  My-code result: [[None, None, None], [215, -140, 100], [1220, 520, 320]]
Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
 Step 3: A(3, 3) x B(2, 6)
  My-code result: [[None, None, None, None, None, None], [-1035, 1210, 640, 3430, 860, None], [9900, 31840, 29920, 15520, 4880, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=2)
 Step 4: A(3, 6) x B(2, 3)
  My-code result: [[None, None, None], [None, None, -6210], [None, None, 59400]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
```

AI Test #2 (synthetic_1002) — chain length 4

```
Integer[][][] test = new Integer[][][] {{{10,3,-1,null},{1,6},{null,10},{20}},{{7},{13,null},{19}},{{13,-2,5,null,null,null},{null,1,17,11,17},{},{8,-
2,18,null,6},{20,null Matrices: [[10, 3, -1, null]; [1, 6]; [null, 10]; [20]]  [[7]; [13, null]; [19]]  [[13, -2, 5, null, null, null]; [null, 1, 17, 11, 17]; []; [8, -2,
18, null, 6]; [20, nul
 Step 1: A(4, 4) x B(3, 2)
  My-code result: [[90, None], [85, None], [130, None], [140, None]]
Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
 Step 2: A(4, 2) x B(5, 6)
  My-code result: [[1170, -180, 450, None, None, None], [1105, -170, 425, None, None, None], [1690, -260, 650, None, None, None], [1820, -280, 700, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=5)
 Step 3: A(4, 6) x B(2, 6)
  My-code result: [[-1080, -3240, -540, -180, -1980, -2880], [-1020, -3060, -510, -170, -1870, -2720], [-1560, -4680, -780, -260, -2860, -4160], [-1680, -5040, -840, -
280,
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
```

AI Test #3 (synthetic_1003) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{8,-5,10,16},{1,-2,10,1},{18,-3,-1,-2},{},{null,3}},{{6,null,-2,null,17,null}},{{12,14,7,11},{3,4,-
5},{16,12,1,12},{}},{{15,6,2,5} Matrices: [[8, -5, 10, 16]; [1, -2, 10, 1]; [18, -3, -1, -2]; []; [null, 3]]  [[6, null, -2, null, 17, null]]  [[12, 14, 7, 11]; [3, 4, -
5]; [16, 12, 1, 12]; []]  [[15, 6,
 Step 1: A(5, 4) x B(1, 6)
  My-code result: [[48, None, -16, None, 136, None], [6, None, -2, None, 17, None], [108, None, -36, None, 306, None], [None, None, None, None, None, None], [None, None,
N
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=1)
 Step 2: A(5, 6) x B(4, 4)
  My-code result: [[320, 480, 320, 336], [40, 60, 40, 42], [720, 1080, 720, 756], [None, None, None, None], [None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 3: A(5, 4) x B(5, 6)
  My-code result: [[16064, 1280, 1120, 6880, None, None], [2008, 160, 140, 860, None, None], [36144, 2880, 2520, 15480, None, None], [None, None, None, None, None, None],
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)
 Step 4: A(5, 6) x B(1, 4)
  My-code result: [[289152, 112448, 273088, 321280], [36144, 14056, 34136, 40160], [650592, 253008, 614448, 722880], [None, None, None, None], [None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 5: A(5, 4) x B(4, 6)
  My-code result: [[8224768, 465856, 819264, 4144512, 11068096, -642560], [1028096, 58232, 102408, 518064, 1383512, -80320], [18505728, 1048176, 1843344, 9325152,
24903216
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 6: A(5, 6) x B(2, 5)
  My-code result: [[8851264, -1863424, None, 2795136, -1397568], [1106408, -232928, None, 349392, -174696], [19915344, -4192704, None, 6289056, -3144528], [None, None,
Non
```

Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)

AI Test #4 (synthetic_1004) — chain length 5

```
Integer[][][] test = new Integer[][][] {{{2,null,-3,6},{19,-2,20,11},{15,7,13},{null,7,16,3,1,20}},{{6,-3,null,16,-5},{10,null,6,null,4,0}},{{15,7}},{{-4,12,-3,-
4},{},{0,1 Matrices: [[2, null, -3, 6]; [19, -2, 20, 11]; [15, 7, 13]; [null, 7, 16, 3, 1, 20]]  [[6, -3, null, 16, -5]; [10, null, 6, null, 4, 0]]  [[15, 7]]  [[-4, 12,
-3, -4]; [];
 Step 1: A(4, 6) x B(2, 6)
  My-code result: [[12, -6, None, 32, -10, None], [94, -57, -12, 304, -103, 0], [160, -45, 42, 240, -47, 0], [70, None, 42, None, 28, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
 Step 2: A(4, 6) x B(1, 2)
  My-code result: [[180, 84], [1410, 658], [2400, 1120], [1050, 490]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 3: A(4, 2) x B(3, 4)
  My-code result: [[-720, 2160, -540, -720], [-5640, 16920, -4230, -5640], [-9600, 28800, -7200, -9600], [-4200, 12600, -3150, -4200]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=3)
 Step 4: A(4, 4) x B(1, 5)
  My-code result: [[None, -10080, -5040, None, None], [None, -78960, -39480, None, None], [None, -134400, -67200, None, None], [None, -58800, -29400, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=1)
```

AI Test #5 (synthetic_1005) — chain length 6

```
Integer[][][] test = new Integer[][][] {{{null,4,1,-2},{19,null,-3,9,-5,5},{15,16,18,-3,12}},{{null,5,2,1,-
5},{1,19,6},{17,16}},{{3},{17,19,2},{},{},{1}},{{13,4,null},{0}, Matrices: [[null, 4, 1, -2]; [19, null, -3, 9, -5, 5]; [15, 16, 18, -3, 12]]  [[null, 5, 2, 1, -5]; [1,
19, 6]; [17, 16]]  [[3]; [17, 19, 2]; []; []; [1]]  [[13, 4, null];
 Step 1: A(3, 6) x B(3, 5)
  My-code result: [[21, 92, 24, None, None], [-51, 47, 38, 19, -95], [322, 667, 126, 15, -75]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 2: A(3, 5) x B(5, 3)
  My-code result: [[1627, 1748, 184], [551, 893, 94], [12230, 12673, 1334]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 3: A(3, 3) x B(5, 5)
  My-code result: [[22991, 7428, -920, 184, -184], [8103, 2674, -470, 94, -94], [172330, 55590, -6670, 1334, -1334]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=5)
 Step 4: A(3, 5) x B(4, 6)
  My-code result: [[216681, 90424, 1104, 1104, -184, 1840], [76233, 32746, 564, 564, -94, 940], [1624350, 676418, 8004, 8004, -1334, 13340]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=4)
 Step 5: A(3, 6) x B(4, 5)
  My-code result: [[1060295, 4425727, 1950129, 487953, None], [387851, 1569193, 686097, 174471, None], [7925542, 33158684, 14619150, 3653604, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
```

AI Test #6 (synthetic_1006) — chain length 3

```
Integer[][][] test = new Integer[][][] {{{null,18,16,-2,12}},{{5},{6,15,8,-1},{null,7,15},{4},{0,null,6,12,null}},{{12,19,20,17,-3,7},{20,8},{null,20,-
4,null},{1,12,6,8,13 Matrices: [[null, 18, 16, -2, 12]]  [[5]; [6, 15, 8, -1]; [null, 7, 15]; [4]; [0, null, 6, 12, null]]  [[12, 19, 20, 17, -3, 7]; [20, 8]; [null, 20,
-4, null]; [1, 12, 6,
 Step 1: A(1, 5) x B(5, 5)
  My-code result: [[100, 382, 456, 126, None]]   Expected (strict):
Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 2: A(1, 5) x B(5, 6)
  My-code result: [[8966, 15588, 932, 2708, 1338, 700]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
```

AI Test #7 (synthetic_1007) — chain length 5

```
Integer[][][] test = new Integer[][][] {{{13,18,null,13}},{{18,1},{19}},{{17}},{{13,-5},{},{20,1,14},{2,8,17,4,20,null}},{{18},{3,6,-1,8,18,13},{1}}};
Matrices: [[13, 18, null, 13]]  [[18, 1]; [19]]  [[17]]  [[13, -5]; []; [20, 1, 14]; [2, 8, 17, 4, 20, null]]  [[18]; [3, 6, -1, 8, 18, 13]; [1]]
 Step 1: A(1, 4) x B(2, 2)
  My-code result: [[576, 13]]   Expected (strict): Invalid/Discarded
(Incompatible dims colsA=4 rowsB=2)
 Step 2: A(1, 2) x B(1, 1)
  My-code result: [[9792]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=1)
 Step 3: A(1, 1) x B(4, 6)
  My-code result: [[127296, -48960, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=1 rowsB=4)
 Step 4: A(1, 6) x B(3, 6)
  My-code result: [[2144448, -293760, 48960, -391680, -881280, -636480]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
```

AI Test #8 (synthetic_1008) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{},{4,11,17,14},{}},{{16,3},{},{8,15,18,12,1}}};
Matrices: [[]; [4, 11, 17, 14]; []]  [[16, 3]; []; [8, 15, 18, 12, 1]]
 Step 1: A(3, 4) x B(3, 5)
  My-code result: [[None, None, None, None, None], [200, 267, 306, 204, 17], [None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
```

AI Test #9 (synthetic_1009) — chain length 8

```
Integer[][][] test = new Integer[][][] {{{11,16,null,12}},{{}},{{null,-2,-3,11,15},{-5,6,null,17,10,1}},{{4,20,20,18},{18,18,19,-5}},{{12,10},{17,17,18},{6,7,10,19},{-5,-
5 Matrices: [[11, 16, null, 12]]  [[]]  [[null, -2, -3, 11, 15]; [-5, 6, null, 17, 10, 1]]  [[4, 20, 20, 18]; [18, 18, 19, -5]]  [[12, 10]; [17, 17, 18]; [6, 7, 10, 19];
[-5
 Step 1: A(1, 4) x B(1, 0)
  My-code result: [[]]   Expected (strict): Invalid/Discarded
(Incompatible dims colsA=4 rowsB=1)
 Step 2: A(1, 0) x B(2, 6)
  My-code result: [[0, 0, 0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=0 rowsB=2)
 Step 3: A(1, 6) x B(2, 4)
  My-code result: [[0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
 Step 4: A(1, 4) x B(5, 4)
  My-code result: [[0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)
 Step 5: A(1, 4) x B(4, 6)
  My-code result: [[0, 0, 0, 0, 0, None]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
 Step 6: A(1, 6) x B(5, 6)
  My-code result: [[0, 0, 0, 0, 0, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
 Step 7: A(1, 6) x B(4, 6)
  My-code result: [[0, 0, 0, 0, 0, 0]]
```

Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)

AI Test #10 (synthetic_1010) — chain length 4

```
Integer[][][] test = new Integer[][][] {{{7}},{{18},{15},{11,10},{16,9,0,2,9}},{{-5,16}},{{18},{12,-3,14,7,-1,4},{7},{9,10,4,15}}};
Matrices: [[7]]  [[18]; [15]; [11, 10]; [16, 9, 0, 2, 9]]  [[-5, 16]]  [[18]; [12, -3, 14, 7, -1, 4]; [7]; [9, 10, 4, 15]]
 Step 1: A(1, 1) x B(4, 5)
  My-code result: [[126, None, None, None, None]]   Expected (strict):
Invalid/Discarded (Incompatible dims colsA=1 rowsB=4)
 Step 2: A(1, 5) x B(1, 2)
  My-code result: [[-630, 2016]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
 Step 3: A(1, 2) x B(4, 6)
  My-code result: [[12852, -6048, 28224, 14112, -2016, 8064]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=4)
```

AI Test #11 (synthetic_1011) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{20,-1,-2,10,15,null},{-4,4},{1,13,18,17,13,6},{3,7},{19}},{{7,-3,19,2,6}}};
Matrices: [[20, -1, -2, 10, 15, null]; [-4, 4]; [1, 13, 18, 17, 13, 6]; [3, 7]; [19]]  [[7, -3, 19, 2, 6]]
 Step 1: A(5, 6) x B(1, 5)
  My-code result: [[140, -60, 380, 40, 120], [-28, 12, -76, -8, -24], [7, -3, 19, 2, 6], [21, -9, 57, 6, 18], [133, -57, 361, 38, 114]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
```

AI Test #12 (synthetic_1012) — chain length 8

```
Integer[][][] test = new Integer[][][] {{{18,9},{null,19,null,-4,null},{2,8,1,16}},{{1,-3,-5,null,0,6}},{{10,13,19,0}},{{18,3,0,0},{3,14,17,1,-
4,19},{13}},{{1,10,null,3,6} Matrices: [[18, 9]; [null, 19, null, -4, null]; [2, 8, 1, 16]]  [[1, -3, -5, null, 0, 6]]  [[10, 13, 19, 0]]  [[18, 3, 0, 0]; [3, 14, 17, 1,
-4, 19]; [13]]  [[1, 10, null,
 Step 1: A(3, 5) x B(1, 6)
  My-code result: [[18, -54, -90, None, 0, 108], [None, None, None, None, None, None], [2, -6, -10, None, 0, 12]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
 Step 2: A(3, 6) x B(1, 4)
  My-code result: [[180, 234, 342, 0], [None, None, None, None], [20, 26, 38, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 3: A(3, 4) x B(3, 6)
  My-code result: [[8388, 3816, 3978, 234, -936, 4446], [None, None, None, None, None, None], [932, 424, 442, 26, -104, 494]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
 Step 4: A(3, 6) x B(5, 5)
  My-code result: [[83268, 99792, 7956, 53010, 50328], [None, None, None, None, None], [9252, 11088, 884, 5890, 5592]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
 Step 5: A(3, 5) x B(5, 6)
  My-code result: [[3858516, 101502, 386262, 979506, -100656, -166536], [None, None, None, None, None, None], [428724, 11278, 42918, 108834, -11184, -18504]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 6: A(3, 6) x B(4, 2)
  My-code result: [[101502, 2030040], [None, None], [11278, 225560]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 7: A(3, 2) x B(3, 6)
  My-code result: [[36540720, -4770594, 40600800, None, 2030040, 26390520], [None, None, None, None, None, None], [4060080, -530066, 4511200, None, 225560, 2932280]]
```

Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=3)

AI Test #13 (synthetic_1013) — chain length 3

```
Integer[][][] test = new Integer[][][] {{{null,20},{12,18},{-2,null,0,14,3,3},{17},{}},{{18},{},{6,0,-2,19,-2}},{{18,2,1,null,null,20},{null},{11,-3,6,11,5},{17,6}}};
Matrices: [[null, 20]; [12, 18]; [-2, null, 0, 14, 3, 3]; [17]; []]  [[18]; []; [6, 0, -2, 19, -2]]  [[18, 2, 1, null, null, 20]; [null]; [11, -3, 6, 11, 5]; [17, 6]]
 Step 1: A(5, 6) x B(3, 5)
  My-code result: [[None, None, None, None, None], [216, None, None, None, None], [-36, 0, 0, 0, 0], [306, None, None, None, None], [None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 2: A(5, 5) x B(4, 6)
  My-code result: [[None, None, None, None, None, None], [3888, 432, 216, None, None, 4320], [-648, -72, -36, 0, 0, -720], [5508, 612, 306, None, None, 6120], [None,
None,
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=4)
```

AI Test #14 (synthetic_1014) — chain length 4

```
Integer[][][] test = new Integer[][][] {{{null,null,13}},{{4,3,9,19},{},{13,9,1}},{{6,-3,4,2},{9,19,2,11,3},{14,-3,10},{-2,12}},{{},{4,-2},{},{7},{16}}};
Matrices: [[null, null, 13]]  [[4, 3, 9, 19]; []; [13, 9, 1]]  [[6, -3, 4, 2]; [9, 19, 2, 11, 3]; [14, -3, 10]; [-2, 12]]  [[]; [4, -2]; []; [7]; [16]]
 Step 1: A(1, 3) x B(3, 4)
  My-code result: [[169, 117, 13, None]]   Expected (strict): Invalid/Discarded
(Invalid/Discarded due to missing A element)
 Step 2: A(1, 4) x B(4, 5)
  My-code result: [[2249, 1677, 1040, 1625, 351]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 3: A(1, 5) x B(5, 2)
  My-code result: [[23699, -3354]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
```

AI Test #15 (synthetic_1015) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{4,14,0,1,7,10}},{{-1,4,3,-1}},{{20},{5,-4,17}},{{0,3,11,12,null,2},{-3,-2,7},{12,10,null,13,-2},{8,-3},{-
2,7,7,5}},{{19,9,10},{11 Matrices: [[4, 14, 0, 1, 7, 10]]  [[-1, 4, 3, -1]]  [[20]; [5, -4, 17]]  [[0, 3, 11, 12, null, 2]; [-3, -2, 7]; [12, 10, null, 13, -2]; [8, -3];
[-2, 7, 7, 5]]  [[19, 9, 1
 Step 1: A(1, 6) x B(1, 4)
  My-code result: [[-4, 16, 12, -4]]   Expected (strict):
Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 2: A(1, 4) x B(2, 3)
  My-code result: [[0, -64, 272]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=2)
 Step 3: A(1, 3) x B(5, 6)
  My-code result: [[3456, 2848, -448, 3536, -544, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=5)
 Step 4: A(1, 6) x B(3, 3)
  My-code result: [[89376, 32896, 34560]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 5: A(1, 3) x B(4, 5)
  My-code result: [[27904, 2157696, 2012832, 65792, 263168]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=4)
 Step 6: A(1, 5) x B(1, 5)
  My-code result: [[None, 83712, 558080, 418560, 111616]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
```

AI Test #16 (synthetic_1016) — chain length 3

```
Integer[][][] test = new Integer[][][] {{{7,-5}},{{13,7,-4,16,null,-5},{6,3,-5,9,7,15}},{{-1},{0,-1,19,null}}};
Matrices: [[7, -5]]  [[13, 7, -4, 16, null, -5]; [6, 3, -5, 9, 7, 15]]  [[-1]; [0, -1, 19, null]]
 Step 1: A(1, 2) x B(2, 6)
  My-code result: [[61, 34, -3, 67, -35, -110]]   Expected (strict):
Invalid/Discarded (Invalid/Discarded due to missing B element)
 Step 2: A(1, 6) x B(2, 4)
  My-code result: [[-61, -34, 646, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
```

AI Test #17 (synthetic_1017) — chain length 8

```
Integer[][][] test = new Integer[][][] {{{11,-2,6,4},{8,2,19,13},{5,16,-2}},{{9,19},{8,-5,-2,0},{3,null,12}},{{10},{9,4,12,15},{2,11,10,-
3,14}},{{10,13,4,2,null,19}},{{14} Matrices: [[11, -2, 6, 4]; [8, 2, 19, 13]; [5, 16, -2]]  [[9, 19]; [8, -5, -2, 0]; [3, null, 12]]  [[10]; [9, 4, 12, 15]; [2, 11, 10, -
3, 14]]  [[10, 13, 4, 2, null, 19]]
 Step 1: A(3, 4) x B(3, 4)
  My-code result: [[101, 219, 76, 0], [145, 142, 224, 0], [167, 15, -56, 0]]
Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
 Step 2: A(3, 4) x B(3, 5)
  My-code result: [[3133, 1712, 3388, 3057, 1064], [3176, 3032, 3944, 1458, 3136], [1693, -556, -380, 393, -784]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
 Step 3: A(3, 5) x B(1, 6)
  My-code result: [[31330, 40729, 12532, 6266, None, 59527], [31760, 41288, 12704, 6352, None, 60344], [16930, 22009, 6772, 3386, None, 32167]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
 Step 4: A(3, 6) x B(3, 3)
  My-code result: [[375960, 87724, -25064], [381120, 88928, -25408], [203160, 47404, -13544]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 5: A(3, 3) x B(2, 6)
  My-code result: [[3082872, 288236, 8020480, -576472, -438620, None], [3125184, 292192, 8130560, -584384, -444640, None], [1665912, 155756, 4334080, -311512, -237020,
Non
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=2)
 Step 6: A(3, 6) x B(4, 5)
  My-code result: [[-19336876, -21392124, 57584540, 3747068, 1729416], [-19602272, -21685728, 58374880, 3798496, 1753152], [-10449196, -11559804, 31117340, 2024828,
934536
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
```

```
 Step 7: A(3, 5) x B(2, 6)
  My-code result: [[-411400496, -232042512, 42784248, -128352744, None, -363666108], [-417046912, -235227264, 43371456, -130114368, None, -368657376], [-222311216, -
125390
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=2)
```

AI Test #18 (synthetic_1018) — chain length 5

```
Integer[][][] test = new Integer[][][] {{{-1,2,16,15,16,12},{null,1,5}},{{17},{15}},{{18,-5,5}},{{-5,13,13,2,6,17},{null,-2,9,13,17,-5},{}},{{},{2,0}}};
Matrices: [[-1, 2, 16, 15, 16, 12]; [null, 1, 5]]  [[17]; [15]]  [[18, -5, 5]]  [[-5, 13, 13, 2, 6, 17]; [null, -2, 9, 13, 17, -5]; []]  [[]; [2, 0]]
 Step 1: A(2, 6) x B(2, 1)
  My-code result: [[13], [15]]   Expected (strict): Invalid/Discarded
(Incompatible dims colsA=6 rowsB=2)
 Step 2: A(2, 1) x B(1, 3)
  My-code result: [[234, -65, 65], [270, -75, 75]]
  Expected (strict): [[234, -65, 65], [270, -75, 75]]
 Step 3: A(2, 3) x B(3, 6)
  My-code result: [[-1170, 3172, 2457, -377, 299, 4303], [-1350, 3660, 2835, -435, 345, 4965]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
 Step 4: A(2, 6) x B(2, 2)
  My-code result: [[6344, 0], [7320, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
```

AI Test #19 (synthetic_1019) — chain length 6

```
Integer[][][] test = new Integer[][][] {{{1},{7},{20},{8,20,9},{1,16,-1}},{{4},{20,-2,1,20,-4},{7,8,null,null},{-3,9,11}},{{9,-3,-2,2,0,4},{},{2,0,-
4,10,null},{null,0,15,7 Matrices: [[1]; [7]; [20]; [8, 20, 9]; [1, 16, -1]]  [[4]; [20, -2, 1, 20, -4]; [7, 8, null, null]; [-3, 9, 11]]  [[9, -3, -2, 2, 0, 4]; []; [2,
0, -4, 10, null]; [null, 0
 Step 1: A(5, 3) x B(4, 5)
  My-code result: [[4, None, None, None, None], [28, None, None, None, None], [80, None, None, None, None], [495, 32, 20, 400, -80], [317, -40, 16, 320, -64]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=4)
 Step 2: A(5, 5) x B(5, 6)
  My-code result: [[36, -12, -8, 8, 0, 16], [252, -84, -56, 56, 0, 112], [720, -240, -160, 160, 0, 320], [4495, -1485, 4930, 3990, 6800, 1980], [2885, -951, 4102, 3034,
54
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 3: A(5, 6) x B(2, 6)
  My-code result: [[-12, 324, -48, -240, 24, 324], [-84, 2268, -336, -1680, 168, 2268], [-240, 6480, -960, -4800, 480, 6480], [-1365, 40655, -6020, -29740, 2970, 40455],
[
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
 Step 4: A(5, 6) x B(2, 6)
  My-code result: [[2100, 5796, 3240, 1944, 4212, 5508], [14700, 40572, 22680, 13608, 29484, 38556], [42000, 115920, 64800, 38880, 84240, 110160], [265475, 727695,
406550,
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
 Step 5: A(5, 6) x B(4, 6)
  My-code result: [[128028, 101496, 75720, 140712, 74940, 69552], [896196, 710472, 530040, 984984, 524580, 486864], [2560560, 2029920, 1514400, 2814240, 1498800,
1391040],
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
```

AI Test #20 (synthetic_1020) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{}},{{},{-1,2,-2}},{{2},{10,15,3,-3}},{{-2,1,12,3,null},{-2,0,-5,16},{4,-2,-1}},{{15,17,15,-1},{7,null,17},{10},{11,-
2,17}},{{15,1 Matrices: [[]]  [[]; [-1, 2, -2]]  [[2]; [10, 15, 3, -3]]  [[-2, 1, 12, 3, null]; [-2, 0, -5, 16]; [4, -2, -1]]  [[15, 17, 15, -1]; [7, null, 17]; [10];
[11, -2, 17]]  [[1
 Step 1: A(1, 0) x B(2, 3)
  My-code result: [[0, 0, 0]]   Expected (strict): Invalid/Discarded
(Incompatible dims colsA=0 rowsB=2)
 Step 2: A(1, 3) x B(2, 4)
  My-code result: [[0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=2)
 Step 3: A(1, 4) x B(3, 5)
  My-code result: [[0, 0, 0, 0, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
 Step 4: A(1, 5) x B(4, 4)
  My-code result: [[0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=4)
 Step 5: A(1, 4) x B(4, 5)
  My-code result: [[0, 0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
 Step 6: A(1, 5) x B(1, 3)
  My-code result: [[0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
```

AI Test #21 (synthetic_1021) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{12,null,19},{},{5,14,9,1,-2,4}},{{16,18},{9,1,10,12,1},{6,2}}};
Matrices: [[12, null, 19]; []; [5, 14, 9, 1, -2, 4]]  [[16, 18]; [9, 1, 10, 12, 1]; [6, 2]]
 Step 1: A(3, 6) x B(3, 5)
  My-code result: [[306, 254, None, None, None], [None, None, None, None, None], [260, 122, 140, 168, 14]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
```

AI Test #22 (synthetic_1022) — chain length 5

```
Integer[][][] test = new Integer[][][] {{{17,10,8,6,-4},{5,7},{-3},{null,3,2,10,19,6},{3}},{{-2,18},{2},{},{}},{{20,-4,8,3,5}},{{-5},{2,15},{15,null,0,4,-5,19}},{{}}};
Matrices: [[17, 10, 8, 6, -4]; [5, 7]; [-3]; [null, 3, 2, 10, 19, 6]; [3]]  [[-2, 18]; [2]; []; []]  [[20, -4, 8, 3, 5]]  [[-5]; [2, 15]; [15, null, 0, 4, -5, 19]]  [[]]
 Step 1: A(5, 6) x B(4, 2)
  My-code result: [[-14, 306], [4, 90], [6, -54], [6, None], [-6, 54]]
Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 2: A(5, 2) x B(1, 5)
  My-code result: [[-280, 56, -112, -42, -70], [80, -16, 32, 12, 20], [120, -24, 48, 18, 30], [120, -24, 48, 18, 30], [-120, 24, -48, -18, -30]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=1)
 Step 3: A(5, 5) x B(3, 6)
  My-code result: [[-168, 840, 0, -448, 560, -2128], [48, -240, 0, 128, -160, 608], [72, -360, 0, 192, -240, 912], [72, -360, 0, 192, -240, 912], [-72, 360, 0, -192, 240,
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
 Step 4: A(5, 6) x B(1, 0)
  My-code result: [[], [], [], [], []]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
```

AI Test #23 (synthetic_1023) — chain length 6

```
Integer[][][] test = new Integer[][][] {{{-5,3,1,13},{19,0,15,8},{16,3,-3,-5},{10}},{{},{19,null,2,18},{null,19,11,18,15}},{{-3,null,12,13},{15},{15,11,-2},{10}},{{9,-5},{ Matrices: [[-5, 3, 1, 13]; [19, 0, 15, 8]; [16, 3, -3, -5]; [10]]  [[]; [19, null, 2, 18]; [null, 19, 11, 18, 15]]  [[-3, null, 12, 13]; [15]; [15, 11, -2]; [10]]
[[9, -5
 Step 1: A(4, 4) x B(3, 5)
  My-code result: [[57, 19, 17, 72, 15], [0, 285, 165, 270, 225], [57, -57, -27, 0, -45], [None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
 Step 2: A(4, 5) x B(4, 4)
  My-code result: [[1089, 187, 650, 741], [9450, 1815, -330, 0], [-1431, -297, 738, 741], [None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=4)
 Step 3: A(4, 4) x B(5, 2)
  My-code result: [[26879, 2706], [121350, -47250], [-5481, 15306], [None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)
 Step 4: A(4, 2) x B(1, 2)
  My-code result: [[53758, -53758], [242700, -242700], [-10962, 10962], [None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=1)
 Step 5: A(4, 2) x B(2, 4)
  My-code result: [[322548, 107516, None, -860128], [1456200, 485400, None, -3883200], [-65772, -21924, None, 175392], [None, None, None, None]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
```

AI Test #24 (synthetic_1024) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{-2,17,4},{null,-4}},{{-4,13,-3,11},{4,null}}};
Matrices: [[-2, 17, 4]; [null, -4]]  [[-4, 13, -3, 11]; [4, null]]
 Step 1: A(2, 3) x B(2, 4)
  My-code result: [[76, -26, 6, -22], [-16, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=2)
```

AI Test #25 (synthetic_1025) — chain length 3

```
Integer[][][] test = new Integer[][][] {{{},{null,null,-4,0},{14},{}},{{12,-1,17,2},{-4,-5,null,20,-5},{-2,-5,18},{8,20,4,12,14},{17}},{{-4,8,14,11,9},{5,7,17,2,5},{14,-
3, Matrices: [[]; [null, null, -4, 0]; [14]; []]  [[12, -1, 17, 2]; [-4, -5, null, 20, -5]; [-2, -5, 18]; [8, 20, 4, 12, 14]; [17]]  [[-4, 8, 14, 11, 9]; [5, 7, 17, 2,
5]; [1
 Step 1: A(4, 4) x B(5, 5)
  My-code result: [[None, None, None, None, None], [8, 20, -72, 0, 0], [168, -14, 238, 28, None], [None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)
 Step 2: A(4, 5) x B(4, 6)
  My-code result: [[None, None, None, None, None, None], [-940, 420, -628, -880, -188, -360], [2954, 532, 5684, 5152, 2632, 1190], [None, None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=4)
```

AI Test #26 (synthetic_1026) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{11},{13,5,-1,10,2},{10,12,20,10,9},{12,null,7,16,11,5}},{{},{}}};
Matrices: [[11]; [13, 5, -1, 10, 2]; [10, 12, 20, 10, 9]; [12, null, 7, 16, 11, 5]]  [[]; []]
 Step 1: A(4, 6) x B(2, 0)
  My-code result: [[], [], [], []]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
```

AI Test #27 (synthetic_1027) — chain length 8

```
Integer[][][] test = new Integer[][][] {{{11,null,4,null},{-2,7,3},{null},{1,-1,9,17,8}},{{-1,18,15,12,null},{null,-4,18,null,-4,7},{-2,3,-5,17,12,2}},{{-
3,20,4,null,10},{ Matrices: [[11, null, 4, null]; [-2, 7, 3]; [null]; [1, -1, 9, 17, 8]]  [[-1, 18, 15, 12, null]; [null, -4, 18, null, -4, 7]; [-2, 3, -5, 17, 12, 2]]
[[-3, 20, 4, null, 1
 Step 1: A(4, 5) x B(3, 6)
  My-code result: [[-19, 210, 145, 200, 48, 8], [-4, -55, 81, 27, 8, 55], [None, None, None, None, None, None], [-19, 49, -48, 165, 112, 11]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
 Step 2: A(4, 6) x B(5, 6)
  My-code result: [[7229, 5574, 7604, 470, 1346, None], [-514, 1, -631, -520, -504, None], [None, None, None, None, None, None], [4027, 4717, 4499, -482, -134, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
 Step 3: A(4, 6) x B(4, 4)
  My-code result: [[163566, 19533, 53228, 30416], [-9246, -6345, -4417, -2524], [None, None, None, None], [100788, 3706, 31493, 17996]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 4: A(4, 4) x B(1, 6)
  My-code result: [[-163566, 817830, 2126358, 1308528, None, 817830], [9246, -46230, -120198, -73968, None, -46230], [None, None, None, None, None, None], [-100788,
503940
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=1)
 Step 5: A(4, 6) x B(1, 1)
  My-code result: [[327132], [-18492], [None], [201576]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 6: A(4, 1) x B(3, 6)
  My-code result: [[4579848, None, 4906980, None, None, None], [-258888, None, -277380, None, None, None], [None, None, None, None, None, None], [2822064, None, 3023640,
N
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=1 rowsB=3)
```

```
 Step 7: A(4, 6) x B(4, 6)
  My-code result: [[54958176, 44162820, 45798480, 59538024, 9159696, 50378328], [-3106656, -2496420, -2588880, -3365544, -517776, -2847768], [None, None, None, None,
None,
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
```

AI Test #28 (synthetic_1028) — chain length 4

```
Integer[][][] test = new Integer[][][] {{{14,-2,6,11,19,10},{16,15,11},{null}},{{},{},{13,-4,11,-1,-2}},{{4,16,7,1,17},{5,4},{-4,9,null,10},{2,4,11,null,20,12}},{{-
1,13,7, Matrices: [[14, -2, 6, 11, 19, 10]; [16, 15, 11]; [null]]  [[]; []; [13, -4, 11, -1, -2]]  [[4, 16, 7, 1, 17]; [5, 4]; [-4, 9, null, 10]; [2, 4, 11, null, 20,
12]]  [[-1,
 Step 1: A(3, 6) x B(3, 5)
  My-code result: [[78, -24, 66, -6, -12], [143, -44, 121, -11, -22], [None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 2: A(3, 5) x B(4, 6)
  My-code result: [[-84, 1722, 480, 738, 1206, -72], [-154, 3157, 880, 1353, 2211, -132], [None, None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=4)
 Step 3: A(3, 6) x B(3, 4)
  My-code result: [[17304, 26460, 9744, None], [31724, 48510, 17864, None], [None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
```

AI Test #29 (synthetic_1029) — chain length 4

```
Integer[][][] test = new Integer[][][] {{{10,null,7,-2},{18,null,-2,14,null,16}},{{null,19,3,-3,3,13}},{{6,null,13,8,14,12},{11,16,14,null}},{{8,20},{20}}};
Matrices: [[10, null, 7, -2]; [18, null, -2, 14, null, 16]]  [[null, 19, 3, -3, 3, 13]]  [[6, null, 13, 8, 14, 12]; [11, 16, 14, null]]  [[8, 20]; [20]]
 Step 1: A(2, 6) x B(1, 6)
  My-code result: [[None, 190, 30, -30, 30, 130], [None, 342, 54, -54, 54, 234]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 2: A(2, 6) x B(2, 6)
  My-code result: [[2090, 3040, 2660, None, None, None], [3762, 5472, 4788, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
 Step 3: A(2, 6) x B(2, 2)
  My-code result: [[77520, 41800], [139536, 75240]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
```

AI Test #30 (synthetic_1030) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{0,7,6,13},{-1},{11,null,6},{14,2,-4,null}},{{8,null,-1,13}},{{15},{13,14,1,-
4},{16,null,14,15},{8,10,5,10,13}},{{},{10,null,15,4} Matrices: [[0, 7, 6, 13]; [-1]; [11, null, 6]; [14, 2, -4, null]]  [[8, null, -1, 13]]  [[15]; [13, 14, 1, -4]; [16,
null, 14, 15]; [8, 10, 5, 10, 13]]  [[]; [10, null, 15
 Step 1: A(4, 4) x B(1, 4)
  My-code result: [[0, None, 0, 0], [-8, None, 1, -13], [88, None, -11, 143], [112, None, -14, 182]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=1)
 Step 2: A(4, 4) x B(4, 5)
  My-code result: [[0, 0, 0, 0, 0], [-208, -130, -51, -115, -169], [2288, 1430, 561, 1265, 1859], [2912, 1820, 714, 1610, 2366]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 3: A(4, 5) x B(3, 5)
  My-code result: [[0, 0, 0, 0, 0], [-1504, -459, -2664, -775, -153], [16544, 5049, 29304, 8525, 1683], [21056, 6426, 37296, 10850, 2142]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
 Step 4: A(4, 5) x B(4, 4)
  My-code result: [[0, 0, 0, 0], [-10993, -53942, -34971, 2664], [120923, 593362, 384681, -29304], [153902, 755188, 489594, -37296]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=4)
 Step 5: A(4, 4) x B(3, 5)
  My-code result: [[0, 0, 0, 0, 0], [-896007, -799292, -1154866, -559536, -164797], [9856077, 8792212, 12703526, 6154896, 1812767], [12544098, 11190088, 16168124,
7833504,
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
 Step 6: A(4, 5) x B(5, 6)
  My-code result: [[0, 0, 0, 0, 0, 0], [4939634, -3197168, -10231380, -3117460, 2078096, -17824496], [-54335974, 35168848, 112545180, 34292060, -22859056, 196069456], [-
69
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
```

AI Test #31 (synthetic_1031) — chain length 5

```
Integer[][][] test = new Integer[][][] {{{20,20,20,null,-4},{10,-2,null,2,13}},{{16,18,15,12},{10,11,null,17},{-2}},{{-2,7,19,5}},{{2},{-3,0,18,-
4,10},{7,8,15},{19,10,8,9, Matrices: [[20, 20, 20, null, -4]; [10, -2, null, 2, 13]]  [[16, 18, 15, 12]; [10, 11, null, 17]; [-2]]  [[-2, 7, 19, 5]]  [[2]; [-3, 0, 18, -
4, 10]; [7, 8, 15]; [19, 10,
 Step 1: A(2, 5) x B(3, 4)
  My-code result: [[480, 580, 300, 580], [140, 158, 150, 86]]   Expected
(strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
 Step 2: A(2, 4) x B(1, 4)
  My-code result: [[-960, 3360, 9120, 2400], [-280, 980, 2660, 700]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=1)
 Step 3: A(2, 4) x B(5, 6)
  My-code result: [[97440, 96960, 216480, 8160, 31200, None], [28420, 28280, 63140, 2380, 9100, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)
 Step 4: A(2, 6) x B(1, 1)
  My-code result: [[487200], [142100]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
```

AI Test #32 (synthetic_1032) — chain length 4

```
Integer[][][] test = new Integer[][][] {{{},{15},{-1,-3,null,14,-4,-3},{15,14,13,-4,7,-1}},{{1,18,9,6,11},{0,null},{3,11,-5,-5,5,17}},{{5,-5}},{{},{0,null},{}}};
Matrices: [[]; [15]; [-1, -3, null, 14, -4, -3]; [15, 14, 13, -4, 7, -1]]  [[1, 18, 9, 6, 11]; [0, null]; [3, 11, -5, -5, 5, 17]]  [[5, -5]]  [[]; [0, null]; []]
 Step 1: A(4, 6) x B(3, 6)
  My-code result: [[None, None, None, None, None, None], [15, 270, 135, 90, 165, None], [-1, -18, -9, -6, -11, None], [54, 413, 70, 25, 230, 221]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 2: A(4, 6) x B(1, 2)
  My-code result: [[None, None], [75, -75], [-5, 5], [270, -270]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 3: A(4, 2) x B(3, 2)
  My-code result: [[None, None], [0, None], [0, None], [0, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=3)
```

AI Test #33 (synthetic_1033) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{5,20,0,0},{5,16,20,10,6}},{{20,19,12},{12,12,13,4},{1},{8,12,-5},{null,10,9,0}},{{9,7,14,-2,-3,0},{-4,-3,-4,4,4},{17,13,null,1,-
1 Matrices: [[5, 20, 0, 0]; [5, 16, 20, 10, 6]]  [[20, 19, 12]; [12, 12, 13, 4]; [1]; [8, 12, -5]; [null, 10, 9, 0]]  [[9, 7, 14, -2, -3, 0]; [-4, -3, -4, 4, 4]; [17, 13,
nu
 Step 1: A(2, 5) x B(5, 4)
  My-code result: [[340, 335, 320, 80], [392, 467, 272, 64]]   Expected (strict):
Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 2: A(2, 4) x B(3, 6)
  My-code result: [[7160, 5535, 3420, 980, 0, 3840], [6284, 4879, 3620, 1356, 420, 3264]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
 Step 3: A(2, 6) x B(2, 6)
  My-code result: [[128575, 21480, None, -14320, 143200, 85920], [113035, 18852, None, -12568, 125680, 75408]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
 Step 4: A(2, 6) x B(4, 4)
  My-code result: [[-614845, 1528275, 2057200, 2571500], [-540193, 1343775, 1808560, 2260700]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 5: A(2, 4) x B(4, 6)
  My-code result: [[70045345, 15429000, 30780605, 10173880, -614845, -5533605], [61579093, 13564200, 27064097, 8942872, -540193, -4861737]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
 Step 6: A(2, 6) x B(4, 5)
  My-code result: [[483554120, -105207260, 224084325, -61329025, 216006000], [425111528, -92488844, 196978665, -53935285, 189898800]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
```

AI Test #34 (synthetic_1034) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{5,6,-3,14,null},{1,13},{20,null,6},{},{2,null,null,null,4}},{{16,1,10},{6,10,20,11,null}}};
Matrices: [[5, 6, -3, 14, null]; [1, 13]; [20, null, 6]; []; [2, null, null, null, 4]]  [[16, 1, 10]; [6, 10, 20, 11, null]]
 Step 1: A(5, 5) x B(2, 5)
  My-code result: [[116, 65, 170, 66, None], [94, 131, 270, 143, None], [320, 20, 200, None, None], [None, None, None, None, None], [32, 2, 20, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=2)
```

AI Test #35 (synthetic_1035) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{-5}},{{3,2,13,4,-2,15},{8,7}}};
Matrices: [[-5]]  [[3, 2, 13, 4, -2, 15]; [8, 7]]
 Step 1: A(1, 1) x B(2, 6)
  My-code result: [[-15, -10, -65, -20, 10, -75]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=1 rowsB=2)
```

AI Test #36 (synthetic_1036) — chain length 6

```
Integer[][][] test = new Integer[][][] {{{-2,-3,-4,6,12,11},{19,6},{null,18,18},{},{14,-5}},{{15,2}},{{10,7},{null,14,11,16,11},{13,null}},{{20,10,9},{12,4,-
5,8},{4},{null Matrices: [[-2, -3, -4, 6, 12, 11]; [19, 6]; [null, 18, 18]; []; [14, -5]]  [[15, 2]]  [[10, 7]; [null, 14, 11, 16, 11]; [13, null]]  [[20, 10, 9]; [12, 4,
-5, 8]; [4]; [n
 Step 1: A(5, 6) x B(1, 2)
  My-code result: [[-30, -4], [285, 38], [None, None], [None, None], [210, 28]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 2: A(5, 2) x B(3, 5)
  My-code result: [[-300, -266, -44, -64, -44], [2850, 2527, 418, 608, 418], [None, None, None, None, None], [None, None, None, None, None], [2100, 1862, 308, 448, 308]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=3)
 Step 3: A(5, 5) x B(5, 4)
  My-code result: [[-9896, -4460, -1766, -2612], [94012, 42370, 16777, 24814], [None, None, None, None], [None, None, None, None], [69272, 31220, 12362, 18284]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 4: A(5, 4) x B(3, 6)
  My-code result: [[-289358, -206516, -189196, -177846, -7388, -89200], [2748901, 1961902, 1797362, 1689537, 70186, 847400], [None, None, None, None, None, None], [None,
N
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
 Step 5: A(5, 6) x B(4, 5)
  My-code result: [[-793046, -4455050, -1859822, 533538, -3023382], [7533937, 42322975, 17668309, -5068611, 28722129], [None, None, None, None, None], [None, None, None,
N
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
```

AI Test #37 (synthetic_1037) — chain length 3

```
Integer[][][] test = new Integer[][][] {{{},{13,2},{},{11}},{{-3,16,1},{13,16,-3},{-2,null,13,19}},{{19,14,19,null,null},{-2,15,10,4,-3},{-5,12,null,0,6}}};
Matrices: [[]; [13, 2]; []; [11]]  [[-3, 16, 1]; [13, 16, -3]; [-2, null, 13, 19]]  [[19, 14, 19, null, null]; [-2, 15, 10, 4, -3]; [-5, 12, null, 0, 6]]
 Step 1: A(4, 2) x B(3, 4)
  My-code result: [[None, None, None, 0], [-13, 240, 7, None], [None, None, None, 0], [-33, 176, 11, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=3)
 Step 2: A(4, 4) x B(3, 5)
  My-code result: [[None, None, None, None, None], [-762, 3502, 2153, 960, -678], [None, None, None, None, None], [-1034, 2310, 1133, 704, -462]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
```

AI Test #38 (synthetic_1038) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{4},{1,13,null,1,13}},{{-4},{},{11,null}}};
Matrices: [[4]; [1, 13, null, 1, 13]]  [[-4]; []; [11, null]]
 Step 1: A(2, 5) x B(3, 2)
  My-code result: [[-16, None], [-4, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
```

AI Test #39 (synthetic_1039) — chain length 4

```
Integer[][][] test = new Integer[][][] {{{}},{{15,19,-5,-1,15},{16,-3,-5},{-5}},{{15,8,4,19},{17,13,9},{17},{12,19,9,15},{20}},{{-3}}};
Matrices: [[]]  [[15, 19, -5, -1, 15]; [16, -3, -5]; [-5]]  [[15, 8, 4, 19]; [17, 13, 9]; [17]; [12, 19, 9, 15]; [20]]  [[-3]]
 Step 1: A(1, 0) x B(3, 5)
  My-code result: [[0, 0, 0, 0, 0]]   Expected (strict): Invalid/Discarded
(Incompatible dims colsA=0 rowsB=3)
 Step 2: A(1, 5) x B(5, 4)
  My-code result: [[0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
 Step 3: A(1, 4) x B(1, 1)
  My-code result: [[0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=1)
```

AI Test #40 (synthetic_1040) — chain length 3

```
Integer[][][] test = new Integer[][][] {{{2,6,null,3,-4,20},{8,7,18,-2,null,1},{},{-5,-4},{-4,16,null}},{{17,-2,11,9,18,18},{2},{}},{{-2,null,1,3,-2,-5},{17,null,14,-5,-5} Matrices: [[2, 6, null, 3, -4, 20]; [8, 7, 18, -2, null, 1]; []; [-5, -4]; [-4, 16, null]]  [[17, -2, 11, 9, 18, 18]; [2]; []]  [[-2, null, 1, 3, -2, -5]; [17, null, 14, -
 Step 1: A(5, 6) x B(3, 6)
  My-code result: [[46, -4, 22, 18, 36, 36], [150, -16, 88, 72, 144, 144], [None, None, None, None, None, None], [-93, 10, -55, -45, -90, -90], [-36, 8, -44, -36, -72, -72
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 2: A(5, 6) x B(3, 6)
  My-code result: [[214, 374, 122, 378, -72, -230], [924, 1496, 454, 1410, -220, -750], [None, None, None, None, None, None], [-579, -935, -283, -879, 136, 465], [-540, -7
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
```

AI Test #41 (synthetic_1041) — chain length 6

```
Integer[][][] test = new Integer[][][] {{{11},{-2,2,-1,null},{},{null,9,null,4}},{{16,0,10},{3,7},{11,4,18,17,-3},{17},{-4,null,-
1}},{{15,null},{18},{3}},{{},{3,0,0},{null Matrices: [[11]; [-2, 2, -1, null]; []; [null, 9, null, 4]]  [[16, 0, 10]; [3, 7]; [11, 4, 18, 17, -3]; [17]; [-4, null, -1]]
[[15, null]; [18]; [3]]  [[]; [3, 0, 0]; [nu
 Step 1: A(4, 4) x B(5, 5)
  My-code result: [[176, 0, 110, None, None], [-37, 10, -38, -17, 3], [None, None, None, None, None], [95, 63, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)
 Step 2: A(4, 5) x B(3, 2)
  My-code result: [[2970, None], [-489, None], [None, None], [2559, None]]
Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
 Step 3: A(4, 2) x B(3, 3)
  My-code result: [[None, None, None], [None, None, None], [None, None, None], [None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=3)
 Step 4: A(4, 3) x B(1, 6)
  My-code result: [[None, None, None, None, None, None], [None, None, None, None, None, None], [None, None, None, None, None, None], [None, None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=1)
 Step 5: A(4, 6) x B(4, 4)
  My-code result: [[None, None, None, None], [None, None, None, None], [None, None, None, None], [None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
```

AI Test #42 (synthetic_1042) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{11,16,2,7},{}},{{null,12,0,-5},{13}},{{}},{{}},{{3,9,11},{null},{19,4,7},{null,null,0,-2,-5},{1,14,null,4}},{{0,7,6,-
4,14,20}},{{ Matrices: [[11, 16, 2, 7]; []]  [[null, 12, 0, -5]; [13]]  [[]]  [[]]  [[3, 9, 11]; [null]; [19, 4, 7]; [null, null, 0, -2, -5]; [1, 14, null, 4]]  [[0, 7,
6, -4, 14, 20]]
 Step 1: A(2, 4) x B(2, 4)
  My-code result: [[208, 132, 0, -55], [None, None, None, None]]
Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=2)
 Step 2: A(2, 4) x B(1, 0)
  My-code result: [[], []]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=1)
 Step 3: A(2, 0) x B(1, 0)
  My-code result: [[], []]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=0 rowsB=1)
 Step 4: A(2, 0) x B(5, 5)
  My-code result: [[0, 0, 0, 0, 0], [0, 0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=0 rowsB=5)
 Step 5: A(2, 5) x B(1, 6)
  My-code result: [[0, 0, 0, 0, 0, 0], [0, 0, 0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
 Step 6: A(2, 6) x B(2, 4)
  My-code result: [[0, 0, 0, 0], [0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
```

AI Test #43 (synthetic_1043) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{-2,5},{},{9,12,7,11},{13,null,17}},{{18},{3},{11,3,-2}},{{3,13},{3,12},{14}},{{18,6,null,-3},{0,-5,null,-3,-
1}},{{17,7,8,7,17}},{ Matrices: [[-2, 5]; []; [9, 12, 7, 11]; [13, null, 17]]  [[18]; [3]; [11, 3, -2]]  [[3, 13]; [3, 12]; [14]]  [[18, 6, null, -3]; [0, -5, null, -3, -
1]]  [[17, 7, 8, 7, 17]
 Step 1: A(4, 4) x B(3, 3)
  My-code result: [[-21, None, None], [None, None, None], [275, 21, -14], [421, 51, -34]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
 Step 2: A(4, 3) x B(3, 2)
  My-code result: [[-63, -273], [None, None], [692, 3827], [940, 6085]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 3: A(4, 2) x B(2, 5)
  My-code result: [[-1134, 987, None, 1008, 273], [None, None, None, None, None], [12456, -14983, None, -13557, -3827], [16920, -24785, None, -21075, -6085]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 4: A(4, 5) x B(1, 5)
  My-code result: [[-19278, -7938, -9072, -7938, -19278], [None, None, None, None, None], [211752, 87192, 99648, 87192, 211752], [287640, 118440, 135360, 118440, 287640]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
 Step 5: A(4, 5) x B(1, 4)
  My-code result: [[-19278, None, None, 77112], [None, None, None, None], [211752, None, None, -847008], [287640, None, None, -1150560]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
 Step 6: A(4, 4) x B(1, 6)
  My-code result: [[-192780, -173502, -231336, -289170, -269892, -385560], [None, None, None, None, None, None], [2117520, 1905768, 2541024, 3176280, 2964528, 4235040],
[2
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=1)
```

AI Test #44 (synthetic_1044) — chain length 8

```
Integer[][][] test = new Integer[][][] {{{16,null,null,1,16,14},{5,9,18,-2,-5},{11,3,7,2,7,null},{1}},{{null},{-4,7,18,7},{-3,19,16},{14,-
4,8,10}},{{},{}},{{4,20}},{{13},{ Matrices: [[16, null, null, 1, 16, 14]; [5, 9, 18, -2, -5]; [11, 3, 7, 2, 7, null]; [1]]  [[null]; [-4, 7, 18, 7]; [-3, 19, 16]; [14, -
4, 8, 10]]  [[]; []]  [[4, 20]]  [[1
 Step 1: A(4, 6) x B(4, 4)
  My-code result: [[14, -4, 8, 10], [-118, 413, 434, 43], [-5, 146, 182, 41], [None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 2: A(4, 4) x B(2, 0)
  My-code result: [[], [], [], []]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=2)
 Step 3: A(4, 0) x B(1, 2)
  My-code result: [[0, 0], [0, 0], [0, 0], [0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=0 rowsB=1)
 Step 4: A(4, 2) x B(3, 3)
  My-code result: [[0, 0, None], [0, 0, None], [0, 0, None], [0, 0, None]]
Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=3)
 Step 5: A(4, 3) x B(4, 6)
  My-code result: [[0, 0, 0, 0, 0, 0], [0, 0, 0, 0, 0, 0], [0, 0, 0, 0, 0, 0], [0, 0, 0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=4)
 Step 6: A(4, 6) x B(1, 4)
  My-code result: [[0, 0, None, 0], [0, 0, None, 0], [0, 0, None, 0], [0, 0, None, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 7: A(4, 4) x B(4, 3)
  My-code result: [[0, 0, 0], [0, 0, 0], [0, 0, 0], [0, 0, 0]]
```

Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)

AI Test #45 (synthetic_1045) — chain length 6

```
Integer[][][] test = new Integer[][][] {{{10,8,4,-4,11},{4,null,12,null,14},{13,15,10,2},{18},{6,1,1,-3,18}},{{null,17,null}},{{17,9,3,null,null},{0,3,11,14,1,5},{-
3,18},{ Matrices: [[10, 8, 4, -4, 11]; [4, null, 12, null, 14]; [13, 15, 10, 2]; [18]; [6, 1, 1, -3, 18]]  [[null, 17, null]]  [[17, 9, 3, null, null]; [0, 3, 11, 14, 1,
5]; [-3,
 Step 1: A(5, 5) x B(1, 3)
  My-code result: [[None, 170, None], [None, 68, None], [None, 221, None], [None, 306, None], [None, 102, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
 Step 2: A(5, 3) x B(4, 6)
  My-code result: [[0, 510, 1870, 2380, 170, 850], [0, 204, 748, 952, 68, 340], [0, 663, 2431, 3094, 221, 1105], [0, 918, 3366, 4284, 306, 1530], [0, 306, 1122, 1428,
102,
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=4)
 Step 3: A(5, 6) x B(5, 5)
  My-code result: [[28560, 32130, 8160, -1530, 6630], [11424, 12852, 3264, -612, 2652], [37128, 41769, 10608, -1989, 8619], [51408, 57834, 14688, -2754, 11934], [17136,
19
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
 Step 4: A(5, 5) x B(1, 4)
  My-code result: [[-85680, 57120, 228480, -85680], [-34272, 22848, 91392, -34272], [-111384, 74256, 297024, -111384], [-154224, 102816, 411264, -154224], [-51408, 34272,
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
 Step 5: A(5, 4) x B(2, 4)
  My-code result: [[-1285200, 1228080, 171360, -257040], [-514080, 491232, 68544, -102816], [-1670760, 1596504, 222768, -334152], [-2313360, 2210544, 308448, -462672], [-
7
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=2)
```

AI Test #46 (synthetic_1046) — chain length 8

```
Integer[][][] test = new Integer[][][] {{{null,4,null},{14,15}},{{-1},{}},{{null,6,6,6,20}},{{4,15}},{{13,8,10,5},{10,19,15,1,-2,12},{5},{0,null,4,null,10,10},{-
2}},{{5,2} Matrices: [[null, 4, null]; [14, 15]]  [[-1]; []]  [[null, 6, 6, 6, 20]]  [[4, 15]]  [[13, 8, 10, 5]; [10, 19, 15, 1, -2, 12]; [5]; [0, null, 4, null, 10, 10];
[-2]]  [[5,
 Step 1: A(2, 3) x B(2, 1)
  My-code result: [[None], [-14]]   Expected (strict): Invalid/Discarded
(Incompatible dims colsA=3 rowsB=2)
 Step 2: A(2, 1) x B(1, 5)
  My-code result: [[None, None, None, None, None], [None, -84, -84, -84, -280]]
Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 3: A(2, 5) x B(1, 2)
  My-code result: [[None, None], [None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
 Step 4: A(2, 2) x B(5, 6)
  My-code result: [[None, None, None, None, None, None], [None, None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=5)
 Step 5: A(2, 6) x B(4, 3)
  My-code result: [[None, None, None], [None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 6: A(2, 3) x B(1, 6)
  My-code result: [[None, None, None, None, None, None], [None, None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=1)
 Step 7: A(2, 6) x B(3, 6)
  My-code result: [[None, None, None, None, None, None], [None, None, None, None, None, None]]
```

Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)

AI Test #47 (synthetic_1047) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{16,5,16},{null,4}},{{20,13,7,5,4,6},{3,10}},{{5,15},{-3,10,1,-1},{11,19,-2,-5,1},{3,-
5,16},{10}},{{10}},{{10,18,null,null,1},{nul Matrices: [[16, 5, 16]; [null, 4]]  [[20, 13, 7, 5, 4, 6]; [3, 10]]  [[5, 15]; [-3, 10, 1, -1]; [11, 19, -2, -5, 1]; [3, -5,
16]; [10]]  [[10]]  [[10, 18, null, null, 1];
 Step 1: A(2, 3) x B(2, 6)
  My-code result: [[335, 258, 112, 80, 64, 96], [12, 40, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=2)
 Step 2: A(2, 6) x B(5, 5)
  My-code result: [[3013, 9333, 1314, -818, 112], [-60, 580, 40, -40, None]]
Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
 Step 3: A(2, 5) x B(1, 1)
  My-code result: [[30130], [-600]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
 Step 4: A(2, 1) x B(2, 5)
  My-code result: [[301300, 542340, None, None, 30130], [-6000, -10800, None, None, -600]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=1 rowsB=2)
 Step 5: A(2, 5) x B(2, 6)
  My-code result: [[8556920, 6508080, None, 2711700, 4820800, 0], [-170400, -129600, None, -54000, -96000, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=2)
 Step 6: A(2, 6) x B(3, 6)
  My-code result: [[159930040, 85569200, 171138400, 42784600, -8556920, 77012280], [-3184800, -1704000, -3408000, -852000, 170400, -1533600]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
```

AI Test #48 (synthetic_1048) — chain length 4

```
Integer[][][] test = new Integer[][][] {{{},{-5,17},{7,4,7,-2,0}},{{-2},{},{-3,5,17}},{{11,null,-4,2,10,2},{-3,-4,null},{-4,1,9,11},{null,-3,null,-2},{}},{{6,2,-2,16,-
1,nu Matrices: [[]; [-5, 17]; [7, 4, 7, -2, 0]]  [[-2]; []; [-3, 5, 17]]  [[11, null, -4, 2, 10, 2]; [-3, -4, null]; [-4, 1, 9, 11]; [null, -3, null, -2]; []]  [[6, 2, -
2, 16,
 Step 1: A(3, 5) x B(3, 3)
  My-code result: [[None, None, None], [10, None, None], [-35, 35, 119]]
Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
 Step 2: A(3, 3) x B(5, 6)
  My-code result: [[None, None, None, None, None, None], [110, None, -40, 20, 100, 20], [-966, -21, 1211, 1239, -350, -70]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=5)
 Step 3: A(3, 6) x B(3, 6)
  My-code result: [[None, None, None, None, None, None], [660, 220, -220, 1760, -110, None], [-6216, -2037, 1974, -15687, 1050, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
```

AI Test #49 (synthetic_1049) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{20,17},{-1,19,2},{2,5}},{{null,null,5,0,null},{-2,12,-5,6,3},{16,2},{},{}}};
Matrices: [[20, 17]; [-1, 19, 2]; [2, 5]]  [[null, null, 5, 0, null]; [-2, 12, -5, 6, 3]; [16, 2]; []; []]
 Step 1: A(3, 3) x B(5, 5)
  My-code result: [[-34, 204, 15, 102, 51], [-6, 232, -100, 114, 57], [-10, 60, -15, 30, 15]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=5)
```

AI Test #50 (synthetic_1050) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{3,7,10},{15,null},{9,5},{-4,null,-4,5,7,8},{-4,7,null,10}},{{-1,0,20,-3,null},{17,null,13,null,-
3,11},{},{10,null,null}},{{null,Matrices: [[3, 7, 10]; [15, null]; [9, 5]; [-4, null, -4, 5, 7, 8]; [-4, 7, null, 10]]  [[-1, 0, 20, -3, null]; [17, null, 13, null, -3,
11]; []; [10, null, null]]  [[null
 Step 1: A(5, 6) x B(4, 6)
  My-code result: [[116, 0, 151, -9, -21, 77], [-15, 0, 300, -45, None, None], [76, 0, 245, -27, -15, 55], [54, 0, -80, 12, None, None], [223, 0, 11, 12, -21, 77]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 2: A(5, 6) x B(4, 6)
  My-code result: [[-90, 2243, 266, 2754, -27, -27], [-450, 4950, 420, 5580, -135, -135], [-270, 3865, 382, 4518, -81, -81], [120, -1520, -112, -1488, 36, 36], [120, -
467,
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 3: A(5, 6) x B(1, 5)
  My-code result: [[-1080, -1530, -900, 180, -90], [-5400, -7650, -4500, 900, -450], [-3240, -4590, -2700, 540, -270], [1440, 2040, 1200, -240, 120], [1440, 2040, 1200, -
2
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 4: A(5, 5) x B(1, 3)
  My-code result: [[-2160, -5400, -5400], [-10800, -27000, -27000], [-6480, -16200, -16200], [2880, 7200, 7200], [2880, 7200, 7200]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
 Step 5: A(5, 3) x B(1, 3)
  My-code result: [[6480, -32400, -21600], [32400, -162000, -108000], [19440, -97200, -64800], [-8640, 43200, 28800], [-8640, 43200, 28800]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=1)
 Step 6: A(5, 3) x B(3, 6)
  My-code result: [[-226800, -766800, None, -583200, -32400, -97200], [-1134000, -3834000, None, -2916000, -162000, -486000], [-680400, -2300400, None, -1749600, -97200,
-
```

Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)

AI Test #51 (synthetic_1051) — chain length 3

```
Integer[][][] test = new Integer[][][] {{{11,null,3,13,1},{-4}},{{18,8},{},{},{13}},{{8,19,19,8,17,3},{10,3,4}}};
Matrices: [[11, null, 3, 13, 1]; [-4]]  [[18, 8]; []; []; [13]]  [[8, 19, 19, 8, 17, 3]; [10, 3, 4]]
 Step 1: A(2, 5) x B(4, 2)
  My-code result: [[367, 88], [-72, -32]]   Expected (strict):
Invalid/Discarded (Incompatible dims colsA=5 rowsB=4)
 Step 2: A(2, 2) x B(2, 6)
  My-code result: [[3816, 7237, 7325, 2936, 6239, 1101], [-896, -1464, -1496, -576, -1224, -216]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
```

AI Test #52 (synthetic_1052) — chain length 6

```
Integer[][][] test = new Integer[][][] {{{-3,7,20},{1,1,null,15,8,8},{16},{null,17,15,null}},{{},{20,-2},{null,15,-2,19,4}},{{6,12},{}},{{2}},{{-4,-2,4},{17,-
1},{},{},{13, Matrices: [[-3, 7, 20]; [1, 1, null, 15, 8, 8]; [16]; [null, 17, 15, null]]  []; [20, -2]; [null, 15, -2, 19, 4]]  [[6, 12]; []]  [[2]]  [[-4, -2, 4]; [17,
-1]; []; []; [
 Step 1: A(4, 6) x B(3, 5)
  My-code result: [[140, 286, -40, 380, 80], [20, -2, None, None, None], [None, None, None, None, None], [340, 191, -30, 285, 60]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 2: A(4, 5) x B(2, 2)
  My-code result: [[840, 1680], [120, 240], [None, None], [2040, 4080]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=2)
 Step 3: A(4, 2) x B(1, 1)
  My-code result: [[1680], [240], [None], [4080]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=1)
 Step 4: A(4, 1) x B(5, 5)
  My-code result: [[-6720, -3360, 6720, None, None], [-960, -480, 960, None, None], [None, None, None, None, None], [-16320, -8160, 16320, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=1 rowsB=5)
 Step 5: A(4, 5) x B(1, 6)
  My-code result: [[26880, -120960, 20160, None, -87360, None], [3840, -17280, 2880, None, -12480, None], [None, None, None, None, None, None], [65280, -293760, 48960,
Non
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
```

AI Test #53 (synthetic_1053) — chain length 8

```
Integer[][][] test = new Integer[][][] {{{8,null},{5,null,7,2,-5}},{{4,null,-5,9},{},{-1,5,-4,18,3,9},{19},{3,null,null,18}},{{18,-3},{17,-1,9,6,18,-1},{-1}},{{-
5,0,null,1 Matrices: [[8, null]; [5, null, 7, 2, -5]]  [[4, null, -5, 9]; []; [-1, 5, -4, 18, 3, 9]; [19]; [3, null, null, 18]]  [[18, -3]; [17, -1, 9, 6, 18, -1]; [-1]]
[[-5, 0, nu
 Step 1: A(2, 5) x B(5, 6)
  My-code result: [[32, None, -40, 72, None, None], [36, 35, -53, 81, 21, 63]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 2: A(2, 6) x B(3, 6)
  My-code result: [[616, -96, None, None, None, None], [1296, -143, 315, 210, 630, -35]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 3: A(2, 6) x B(1, 6)
  My-code result: [[-3080, 0, None, 9856, 616, -616], [-6480, 0, None, 20736, 1296, -1296]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 4: A(2, 6) x B(2, 6)
  My-code result: [[-9240, 15400, 0, 0, None, 0], [-19440, 32400, 0, 0, None, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
 Step 5: A(2, 6) x B(4, 6)
  My-code result: [[-147840, -12320, 246400, -77000, 77000, 0], [-311040, -25920, 518400, -162000, 162000, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 6: A(2, 6) x B(3, 4)
  My-code result: [[-1724800, 295680, 2710400, 2710400], [-3628800, 622080, 5702400, 5702400]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 7: A(2, 4) x B(5, 6)
  My-code result: [[36861440, 11777920, 28878080, -30504320, 5765760, 5174400], [77552640, 24779520, 60756480, -64177920, 12130560, 10886400]]
```

Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)

AI Test #54 (synthetic_1054) — chain length 4

```
Integer[][][] test = new Integer[][][] {{{1,10,19,3,7}},{{-4,12,1,19,2},{9,10},{},{12,null},{5,0,12,19}},{{-3,13},{},{},{2,5},{null}},{{-4,3},{-4,1,20,0,3,11},{6,3,18,5,-
3 Matrices: [[1, 10, 19, 3, 7]]  [[-4, 12, 1, 19, 2]; [9, 10]; []; [12, null]; [5, 0, 12, 19]]  [[-3, 13]; []; []; [2, 5]; [null]]  [[-4, 3]; [-4, 1, 20, 0, 3, 11]; [6,
3, 1
 Step 1: A(1, 5) x B(5, 5)
  My-code result: [[157, 112, 85, 152, 2]]   Expected (strict): Invalid/Discarded
(Invalid/Discarded due to missing B element)
 Step 2: A(1, 5) x B(5, 2)
  My-code result: [[-167, 2801]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
 Step 3: A(1, 2) x B(4, 6)
  My-code result: [[-10536, 2300, 56020, 0, 8403, 30811]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=4)
```

AI Test #55 (synthetic_1055) — chain length 5

```
Integer[][][] test = new Integer[][][] {{{-5,-4,3},{12,-1,14,12,-5,3}},{{1},{null,8,19},{5,-4,11,4},{-2,-4}},{{12,8,-2,-5},{},{},{7},{null,15,12,8,10,2}},{{3,-
2,11}},{{1,Matrices: [[-5, -4, 3]; [12, -1, 14, 12, -5, 3]]  [[1]; [null, 8, 19]; [5, -4, 11, 4]; [-2, -4]]  [[12, 8, -2, -5]; []; []; [7]; [null, 15, 12, 8, 10, 2]]
[[3, -2, 11]]
 Step 1: A(2, 6) x B(4, 4)
  My-code result: [[10, -44, -43, 12], [58, -112, 135, 56]]   Expected
(strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 2: A(2, 4) x B(5, 6)
  My-code result: [[204, 80, -20, -50, None, None], [1088, 464, -116, -290, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)
 Step 3: A(2, 6) x B(1, 3)
  My-code result: [[612, -408, 2244], [3264, -2176, 11968]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 4: A(2, 3) x B(4, 6)
  My-code result: [[24072, -7752, 45492, 4284, -3060, 1836], [128384, -41344, 242624, 22848, -16320, 9792]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=4)
```

AI Test #56 (synthetic_1056) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{20,13,6,1,3}},{{7,-2,0,16,8,-4},{null,13,0},{},{15},{}},{{16,5,-3,9,4}},{{16,10,14},{null},{10}},{{-3,19},{2,0,11,0},{},{-
3,18,12 Matrices: [[20, 13, 6, 1, 3]]  [[7, -2, 0, 16, 8, -4]; [null, 13, 0]; []; [15]; []]  [[16, 5, -3, 9, 4]]  [[16, 10, 14]; [null]; [10]]  [[-3, 19]; [2, 0, 11, 0];
[]; [-3,
 Step 1: A(1, 5) x B(5, 6)
  My-code result: [[155, 129, 0, 320, 160, -80]]   Expected (strict):
Invalid/Discarded (Invalid/Discarded due to missing B element)
 Step 2: A(1, 6) x B(1, 5)
  My-code result: [[2480, 775, -465, 1395, 620]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 3: A(1, 5) x B(3, 3)
  My-code result: [[35030, 24800, 34720]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
 Step 4: A(1, 3) x B(4, 4)
  My-code result: [[-55490, 665570, 272800, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=4)
 Step 5: A(1, 4) x B(1, 4)
  My-code result: [[-721370, None, -721370, -721370]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=1)
 Step 6: A(1, 4) x B(4, 5)
  My-code result: [[-7213700, -12263290, -28854800, -2164110, -721370]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
```

AI Test #57 (synthetic_1057) — chain length 6

```
Integer[][][] test = new Integer[][][] {{{4,null,6,-5},{19},{-1,10,null,9}},{{-5,-3},{},{}},{{18,7},{8,17,5},{},{20,null,-2},{14,20,19,1,null}},{{18},{-
4,2,0,17},{null,18, Matrices: [[4, null, 6, -5]; [19]; [-1, 10, null, 9]]  [[-5, -3]; []; []]  [[18, 7]; [8, 17, 5]; []; [20, null, -2]; [14, 20, 19, 1, null]]  [[18]; [-
4, 2, 0, 17]; [null,
 Step 1: A(3, 4) x B(3, 2)
  My-code result: [[-20, -12], [-95, -57], [5, 3]]   Expected (strict):
Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
 Step 2: A(3, 2) x B(5, 5)
  My-code result: [[-456, -344, -60, None, None], [-2166, -1634, -285, None, None], [114, 86, 15, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=5)
 Step 3: A(3, 5) x B(4, 5)
  My-code result: [[-6832, -1768, -960, -6868, -720], [-32452, -8398, -4560, -32623, -3420], [1708, 442, 240, 1717, 180]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=4)
 Step 4: A(3, 5) x B(5, 5)
  My-code result: [[-62356, -79572, -77616, -101100, 720], [-296191, -377967, -368676, -480225, 3420], [15589, 19893, 19404, 25275, -180]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
 Step 5: A(3, 5) x B(4, 6)
  My-code result: [[-339672, -3097120, -32092, -2047440, 101100, -2561420], [-1613442, -14711320, -152437, -9725340, 480225, -12166745], [84918, 774280, 8023, 511860, -
252
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=4)
```

AI Test #58 (synthetic_1058) — chain length 6

```
Integer[][][] test = new Integer[][][] {{{},{-1,8,2}},{{1,1,12,2,7},{18,19,-4,11,8,11}},{{4,8},{2,4},{5,null,14,14,0,11}},{{-1,12},{-
2}},{{3,12,null,4,16,11},{4,2,19,5},{1 Matrices: [[]; [-1, 8, 2]]  [[1, 1, 12, 2, 7]; [18, 19, -4, 11, 8, 11]]  [[4, 8]; [2, 4]; [5, null, 14, 14, 0, 11]]  [[-1, 12]; [-
2]]  [[3, 12, null, 4, 16, 11]; [4, 2, 19
 Step 1: A(2, 3) x B(2, 6)
  My-code result: [[None, None, None, None, None, None], [143, 151, -44, 86, 57, 88]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=2)
 Step 2: A(2, 6) x B(3, 6)
  My-code result: [[None, None, None, None, None, None], [654, 1748, -616, -616, 0, -484]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 3: A(2, 6) x B(2, 2)
  My-code result: [[None, None], [-4150, 7848]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
 Step 4: A(2, 2) x B(5, 6)
  My-code result: [[None, None, None, None, None, None], [18942, -34104, 149112, 22640, -66400, -45650]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=5)
 Step 5: A(2, 6) x B(2, 4)
  My-code result: [[None, None, None, None], [-269052, None, 132594, 94710]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
```

AI Test #59 (synthetic_1059) — chain length 5

```
Integer[][][] test = new Integer[][][] {{{-4,9,12,19},{}},{{null,17,11,0,8,1},{15,1,5},{20,10},{1,-2,5,20,8},{}},{{18,-2,5,-2,17,15},{12},{5,17,3,-2,7,10},{5,-
3}},{{},{15} Matrices: [[-4, 9, 12, 19]; []]  [[null, 17, 11, 0, 8, 1]; [15, 1, 5]; [20, 10]; [1, -2, 5, 20, 8]; []]  [[18, -2, 5, -2, 17, 15]; [12]; [5, 17, 3, -2, 7,
10]; [5, -3]]  [
 Step 1: A(2, 4) x B(5, 6)
  My-code result: [[394, 23, 96, 380, 120, -4], [None, None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)
 Step 2: A(2, 6) x B(4, 6)
  My-code result: [[9748, -296, 2258, -980, 7370, 6870], [None, None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 3: A(2, 6) x B(4, 1)
  My-code result: [[-4440], [None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 4: A(2, 1) x B(1, 6)
  My-code result: [[4440, -88800, -4440, -4440, 4440, None], [None, None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
```

AI Test #60 (synthetic_1060) — chain length 5

```
Integer[][][] test = new Integer[][][] {{{0,9,7,14},{4,9,null,null,-1},{-2},{10,12,3},{10,13,5,-1,18,17}},{{0},{-3,6,4,9,12},{11},{1,-
3,8,4,2,4},{4}},{{},{19,10,0,13},{nul Matrices: [[0, 9, 7, 14]; [4, 9, null, null, -1]; [-2]; [10, 12, 3]; [10, 13, 5, -1, 18, 17]]  [[0]; [-3, 6, 4, 9, 12]; [11]; [1, -
3, 8, 4, 2, 4]; [4]]  [[]; [19, 10, 0, 1
 Step 1: A(5, 6) x B(5, 6)
  My-code result: [[64, 12, 148, 137, 136, 56], [-31, 54, 36, 81, 108, None], [0, None, None, None, None, None], [-3, 72, 48, 108, 144, None], [87, 81, 44, 113, 154, -4]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
 Step 2: A(5, 6) x B(3, 5)
  My-code result: [[228, 712, 2812, -288, 2368], [1026, 684, 684, 594, 576], [None, None, None, None, None], [1368, 912, 912, 792, 768], [1539, 986, 836, 921, 704]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 3: A(5, 5) x B(5, 5)
  My-code result: [[24248, -3168, 9844, 43568, 26092], [24696, 6534, -1692, 9576, 10944], [None, None, None, None, None], [32928, 8712, -2256, 12768, 14592], [35704,
10131
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 4: A(5, 5) x B(3, 6)
  My-code result: [[671996, 48496, None, 315224, -48496, None], [461772, 49392, None, 321048, -49392, None], [None, None, None, None, None, None], [615696, 65856, None,
42
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
```

AI Test #61 (synthetic_1061) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{-1,17,14,5,12,12},{5,17,3,9}},{{},{15,5,-1,1,14},{5,4,3,null,7,-4},{19,-3},{}}};
Matrices: [[-1, 17, 14, 5, 12, 12]; [5, 17, 3, 9]]  [[]; [15, 5, -1, 1, 14]; [5, 4, 3, null, 7, -4]; [19, -3]; []]
 Step 1: A(2, 6) x B(5, 6)
  My-code result: [[420, 126, 25, 17, 336, -56], [441, 70, -8, 17, 259, -12]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
```

AI Test #62 (synthetic_1062) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{-3,12,-1,-2},{19},{2}},{{-1,-2,5},{6}},{{4,1,null,12,5,5},{1,8,-1},{},{-4,2,14,null,14},{0,10}},{{18,6,-
1},{16,13,7,15,8,8},{0,6, Matrices: [[-3, 12, -1, -2]; [19]; [2]]  [[-1, -2, 5]; [6]]  [[4, 1, null, 12, 5, 5]; [1, 8, -1]; []; [-4, 2, 14, null, 14]; [0, 10]]  [[18, 6,
-1]; [16, 13, 7, 15, 8, 8];
 Step 1: A(3, 4) x B(2, 3)
  My-code result: [[75, 6, -15], [-19, -38, 95], [-2, -4, 10]]   Expected
(strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=2)
 Step 2: A(3, 3) x B(5, 6)
  My-code result: [[306, 123, -6, 900, 375, 375], [-114, -323, 38, -228, -95, -95], [-12, -34, 4, -24, -10, -10]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=5)
 Step 3: A(3, 6) x B(3, 6)
  My-code result: [[7476, 3399, 543, 1845, 912, 984], [-7220, -4655, -2071, -4845, -2128, -2584], [-760, -490, -218, -510, -224, -272]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 4: A(3, 6) x B(1, 0)
  My-code result: [[], [], []]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 5: A(3, 0) x B(2, 3)
  My-code result: [[0, 0, 0], [0, 0, 0], [0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=0 rowsB=2)
 Step 6: A(3, 3) x B(3, 5)
  My-code result: [[0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
```

AI Test #63 (synthetic_1063) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{16,-3,-1,12},{0,-5,-4,3,6,-2},{19,10}},{{},{9,20,5,-2,11,-4},{},{7,-1,19,null}}};
Matrices: [[16, -3, -1, 12]; [0, -5, -4, 3, 6, -2]; [19, 10]]  [[]; [9, 20, 5, -2, 11, -4]; []; [7, -1, 19, null]]
 Step 1: A(3, 6) x B(4, 6)
  My-code result: [[57, -72, 213, 6, -33, 12], [-24, -103, 32, 10, -55, 20], [90, 200, 50, -20, 110, -40]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
```

AI Test #64 (synthetic_1064) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{20,12}},{{},{null,3,13,16,15,13},{17,4,9,20},{10,6,null,-5,16}}};
Matrices: [[20, 12]]  [[]; [null, 3, 13, 16, 15, 13]; [17, 4, 9, 20]; [10, 6, null, -5, 16]]
 Step 1: A(1, 2) x B(4, 6)
  My-code result: [[None, 36, 156, 192, 180, 156]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=4)
```

AI Test #65 (synthetic_1065) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{9,6,9}},{{null,11,19},{8},{9,null,11},{13,-3}}};
Matrices: [[9, 6, 9]]  [[null, 11, 19]; [8]; [9, null, 11]; [13, -3]]
 Step 1: A(1, 3) x B(4, 3)
  My-code result: [[129, 99, 270]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=4)
```

AI Test #66 (synthetic_1066) — chain length 4

```
Integer[][][] test = new Integer[][][] {{{null,-3}},{{18,12,null,1,12},{-5,20,-5,-5},{7,8,12}},{{18,20,18},{20,-2,-5,5,9,8},{-5,16,8,12,-2}},{{6,1,9,1,13,null},{16,-
1,10,7 Matrices: [[null, -3]]  [[18, 12, null, 1, 12]; [-5, 20, -5, -5]; [7, 8, 12]]  [[18, 20, 18]; [20, -2, -5, 5, 9, 8]; [-5, 16, 8, 12, -2]]  [[6, 1, 9, 1, 13, null];
[16, -1
 Step 1: A(1, 2) x B(3, 5)
  My-code result: [[15, -60, 15, 15, None]]   Expected (strict):
Invalid/Discarded (Incompatible dims colsA=2 rowsB=3)
 Step 2: A(1, 5) x B(3, 6)
  My-code result: [[-1005, 660, 690, -120, -570, -480]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
 Step 3: A(1, 6) x B(3, 6)
  My-code result: [[4530, -3735, 3765, 7755, 135, -1950]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
```

AI Test #67 (synthetic_1067) — chain length 3

```
Integer[][][] test = new Integer[][][] {{{10,18,null,8,-1},{null,10},{8,20}},{{0,2},{},{1,15,5,5},{6,-1,-4,20,6,5},{-2,null}},{{},{18,null,null,11},{19,3,7,0},{null},{-
1,7 Matrices: [[10, 18, null, 8, -1]; [null, 10]; [8, 20]]  [[0, 2]; []; [1, 15, 5, 5]; [6, -1, -4, 20, 6, 5]; [-2, null]]  [[]; [18, null, null, 11]; [19, 3, 7, 0];
[null]; [
 Step 1: A(3, 5) x B(5, 6)
  My-code result: [[50, 12, -32, 160, 48, 40], [None, None, None, None, None, None], [0, 16, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 2: A(3, 6) x B(5, 5)
  My-code result: [[-440, 240, 736, 276, 528], [None, None, None, None, None], [288, None, None, 176, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
```

AI Test #68 (synthetic_1068) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{-3,-1,8},{17,-2},{6,19,-5,9,20},{null,6,14}},{{8},{1,null,-3,4,19},{2},{}},{{15,12,null},{4,16,18,-3},{4,-1,-
4,13}},{{8,10,null}, Matrices: [[-3, -1, 8]; [17, -2]; [6, 19, -5, 9, 20]; [null, 6, 14]]  [[8]; [1, null, -3, 4, 19]; [2]; []]  [[15, 12, null]; [4, 16, 18, -3]; [4, -1,
-4, 13]]  [[8, 10, nu
 Step 1: A(4, 5) x B(4, 5)
  My-code result: [[-9, None, 3, -4, -19], [134, None, 6, -8, -38], [57, None, -57, 76, 361], [34, None, -18, 24, 114]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=4)
 Step 2: A(4, 5) x B(3, 4)
  My-code result: [[-123, -111, -12, 39], [2034, 1602, -24, 78], [627, 741, 228, -741], [438, 426, 72, -234]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
 Step 3: A(4, 4) x B(4, 6)
  My-code result: [[-720, -957, 933, -1401, -195, -156], [9504, 17238, -5430, 17262, -390, -312], [5472, 3819, -12255, 11571, 3705, 2964], [2880, 3222, -4638, 5766, 1170,
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
 Step 4: A(4, 6) x B(5, 6)
  My-code result: [[-20301, -32676, -33639, -8298, -28818, -3753], [197430, 442632, 504546, 60012, 358236, 149358], [207195, 239856, 210273, 100206, 235638, -46341],
[9048
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
 Step 5: A(4, 6) x B(3, 6)
  My-code result: [[-858243, -24741, -1012494, -655446, 98991, -490140], [12065658, -81402, 13664148, 8976468, -1389810, 6639480], [5970009, 494019, 7470534, 4737954, -
689
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 6: A(4, 6) x B(5, 6)
  My-code result: [[-27710820, -2447784, -17784453, -14096424, -17212398, -173187], [376681224, 31296240, 240949494, 184510176, 232290516, -569814], [202428432, 19364040,
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
```

AI Test #69 (synthetic_1069) — chain length 4

```
Integer[][][] test = new Integer[][][] {{{-5,14,1,null,14,6},{},{20,4}},{{-2},{11,null,null,12,-5,14},{-4,12,7,5,-2},{1,17,12,18,16,6},{}},{{7,9,15,-2},{2},{12,-
5,0,13},{3 Matrices: [[-5, 14, 1, null, 14, 6]; []; [20, 4]]  [[-2]; [11, null, null, 12, -5, 14]; [-4, 12, 7, 5, -2]; [1, 17, 12, 18, 16, 6]; []]  [[7, 9, 15, -2]; [2];
[12, -5, 0,
 Step 1: A(3, 6) x B(5, 6)
  My-code result: [[160, 12, 7, 173, -72, 196], [None, None, None, None, None, None], [4, None, None, 48, -20, 56]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
 Step 2: A(3, 6) x B(5, 6)
  My-code result: [[1171, 2891, 2400, -229, -1152, 288], [None, None, None, None, None, None], [12, 448, 60, -8, -320, 80]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
 Step 3: A(3, 6) x B(3, 6)
  My-code result: [[82100, 76504, 8673, 34692, 37802, -4684], [None, None, None, None, None, None], [5244, 5428, 1344, 5376, 3316, -48]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
```

AI Test #70 (synthetic_1070) — chain length 6

```
Integer[][][] test = new Integer[][][] {{{6,8,-3,-4,16,-4},{-2,5,13,6,6},{-4,null,3},{2,null,6,10},{}},{{-1,4,12,12,14,14},{9,19},{null},{7}},{{15,3},{4,null,4,6,8},{10,-
4 Matrices: [[6, 8, -3, -4, 16, -4]; [-2, 5, 13, 6, 6]; [-4, null, 3]; [2, null, 6, 10]; []]  [[-1, 4, 12, 12, 14, 14]; [9, 19]; [null]; [7]]  [[15, 3]; [4, null, 4, 6,
8];
 Step 1: A(5, 6) x B(4, 6)
  My-code result: [[38, 176, 72, 72, 84, 84], [89, 87, -24, -24, -28, -28], [4, -16, -48, -48, -56, -56], [68, 8, 24, 24, 28, 28], [None, None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 2: A(5, 6) x B(3, 6)
  My-code result: [[1994, -174, 920, 1992, 2416, 1368], [1443, 363, 276, 210, 360, -456], [-484, 204, -208, -720, -800, -912], [1292, 108, 104, 360, 400, 456], [None,
None
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 3: A(5, 6) x B(5, 6)
  My-code result: [[32670, 36936, -7248, -4832, 45904, 26576], [1587, 6042, -1080, -720, 6840, 3960], [-9996, -11856, 2400, 1600, -15200, -8800], [-252, 5928, -1200, -
800,
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
 Step 4: A(5, 6) x B(5, 6)
  My-code result: [[-123216, 947504, 257466, -163350, 163350, 130680], [-18360, 114936, 28521, -7935, 7935, 6348], [40800, -307168, -82788, 49980, -49980, -39984], [-
20400
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
 Step 5: A(5, 6) x B(4, 6)
  My-code result: [[9722120, 5986626, 4376922, 660216, -2519490, None], [1146804, 685341, 484857, 59004, -326205, None], [-3143632, -1930548, -1407396, -208752, 821940,
No
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
```

AI Test #71 (synthetic_1071) — chain length 6

```
Integer[][][] test = new Integer[][][] {{{14,15,null,2},{7,null}},{{null,4,9,-1,5,-3},{10,-4,3,18,12}},{{2,19,5,15,15},{null,19},{6,17,14,null},{1,null,null},{-
3,8,0,16,7, Matrices: [[14, 15, null, 2]; [7, null]]  [[null, 4, 9, -1, 5, -3]; [10, -4, 3, 18, 12]]  [[2, 19, 5, 15, 15]; [null, 19]; [6, 17, 14, null]; [1, null, null];
[-3, 8, 0, 1
 Step 1: A(2, 4) x B(2, 6)
  My-code result: [[150, -4, 171, 256, 250, -42], [None, 28, 63, -7, 35, -21]]
Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=2)
 Step 2: A(2, 6) x B(5, 6)
  My-code result: [[832, 7681, 3144, 6250, 4000, 250], [266, 1883, 882, 560, 245, 35]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
 Step 3: A(2, 6) x B(4, 6)
  My-code result: [[-8007, 133945, 159484, 158712, 125758, 84491], [-4011, 32795, 39242, 35826, 32774, 20713]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 4: A(2, 6) x B(2, 4)
  My-code result: [[385821, 1613173, -24021, 133945], [90363, 362159, -12033, 32795]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
 Step 5: A(2, 4) x B(3, 3)
  My-code result: [[7470377, 10766612, 24443638], [1718311, 2443336, 5521334]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
```

AI Test #72 (synthetic_1072) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{-1,12,-4,10}},{{3,19,null,8,15},{7,5,8},{20,19},{15}}};
Matrices: [[-1, 12, -4, 10]]  [[3, 19, null, 8, 15]; [7, 5, 8]; [20, 19]; [15]]
 Step 1: A(1, 4) x B(4, 5)
  My-code result: [[151, -35, 96, -8, -15]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
```

AI Test #73 (synthetic_1073) — chain length 8

```
Integer[][][] test = new Integer[][][] {{{null,null,18,null,2,17},{16,13,3,5,7},{},{}},{{5,null,8},{10,null,-3,15,-5},{null,8,-2,-1,-5},{-5,3,2,-2,null},{null,-3,-1,8,-
1,1 Matrices: [[null, null, 18, null, 2, 17]; [16, 13, 3, 5, 7]; []; []]  [[5, null, 8]; [10, null, -3, 15, -5]; [null, 8, -2, -1, -5]; [-5, 3, 2, -2, null]; [null, -3, -
1, 8,
 Step 1: A(4, 6) x B(5, 6)
  My-code result: [[None, 138, -38, -2, -92, 28], [185, 18, 86, 238, -87, 98], [None, None, None, None, None, None], [None, None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
 Step 2: A(4, 6) x B(1, 2)
  My-code result: [[None, None], [-925, -370], [None, None], [None, None]]
Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 3: A(4, 2) x B(2, 4)
  My-code result: [[None, None, None, None], [-1850, 0, -18500, -14800], [None, None, None, None], [None, None, None, None]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 4: A(4, 4) x B(5, 5)
  My-code result: [[None, None, None, None, None], [-83250, -333000, 0, None, -277500], [None, None, None, None, None], [None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)
 Step 5: A(4, 5) x B(3, 2)
  My-code result: [[None, None], [-1082250, -5577750], [None, None], [None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
 Step 6: A(4, 2) x B(3, 2)
  My-code result: [[None, None], [-2164500, -4329000], [None, None], [None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=3)
 Step 7: A(4, 2) x B(5, 6)
```

My-code result: [[None, None, None, None, None, None], [-32467500, None, -73593000, -21645000, 17316000, -77922000], [None, None, None, None, None, None], [None, None,
N
Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=5)

AI Test #74 (synthetic_1074) — chain length 3

```
Integer[][][] test = new Integer[][][] {{{null},{1,19,19,7},{}},{{0},{null,null,null,9,13},{13,20,-2},{-5,5,19,0,0},{null,-1}},{{15,18,19,8,19,8},{2,1,8},{0}}};
Matrices: [[null]; [1, 19, 19, 7]; []]  [[0]; [null, null, null, 9, 13]; [13, 20, -2]; [-5, 5, 19, 0, 0]; [null, -1]]  [[15, 18, 19, 8, 19, 8]; [2, 1, 8]; [0]]
 Step 1: A(3, 4) x B(5, 5)
  My-code result: [[None, None, None, None, None], [212, 415, 95, 171, 247], [None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)
 Step 2: A(3, 5) x B(3, 6)
  My-code result: [[None, None, None, None, None, None], [4010, 4231, 7348, 1696, 4028, 1696], [None, None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
```

AI Test #75 (synthetic_1075) — chain length 4

```
Integer[][][] test = new Integer[][][] {{{8,10},{5,7,4,-4},{9,3,-4,19}},{{5,12,-3,0},{null,null,10,-3},{-2,15,13,2,null}},{{2,15,null,0,null},{13,2,14,-1},{8,15,-1,1,-
2},{ Matrices: [[8, 10]; [5, 7, 4, -4]; [9, 3, -4, 19]]  [[5, 12, -3, 0]; [null, null, 10, -3]; [-2, 15, 13, 2, null]]  [[2, 15, null, 0, null]; [13, 2, 14, -1]; [8, 15,
-1, 1,
 Step 1: A(3, 4) x B(3, 5)
  My-code result: [[40, 96, 76, -30, None], [17, 120, 107, -13, None], [53, 48, -49, -17, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
 Step 2: A(3, 5) x B(5, 5)
  My-code result: [[1456, 1632, 1268, -20, -152], [2242, 1970, 1573, -13, -214], [66, -14, 721, -97, 98]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 3: A(3, 5) x B(3, 3)
  My-code result: [[-9968, 0, 10144], [-12202, 0, 12584], [-2842, 0, 5768]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
```

AI Test #76 (synthetic_1076) — chain length 5

```
Integer[][][] test = new Integer[][][] {{{},{14,15,null,-3},{1,10,16,18,7,-3}},{{},{-4,13},{-5,-1},{18,-2}},{{},{17,20,-5,10,7,null},{11,-4,5,-4,7,8}},{{},{},{18},{7,-
2,7, Matrices: [[]; [14, 15, null, -3]; [1, 10, 16, 18, 7, -3]]  [[]; [-4, 13]; [-5, -1]; [18, -2]]  [[]; [17, 20, -5, 10, 7, null]; [11, -4, 5, -4, 7, 8]]  [[]; [];
[18]; [7,
 Step 1: A(3, 6) x B(4, 2)
  My-code result: [[None, None], [-114, 201], [204, 78]]   Expected
(strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 2: A(3, 2) x B(3, 6)
  My-code result: [[None, None, None, None, None, None], [3417, 4020, -1005, 2010, 1407, None], [1326, 1560, -390, 780, 546, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=3)
 Step 3: A(3, 6) x B(5, 6)
  My-code result: [[None, None, None, None, None, None], [-2613, 21306, 14070, 36180, 6030, 24120], [-1014, 8268, 5460, 14040, 2340, 9360]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
 Step 4: A(3, 6) x B(2, 4)
  My-code result: [[None, None, None, None], [298284, 191754, 276978, 42612], [115752, 74412, 107484, 16536]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
```

AI Test #77 (synthetic_1077) — chain length 8

```
Integer[][][] test = new Integer[][][] {{{9,7,9,4},{13,4},{15,8,-2,10,null},{1,5,10,8,0,-3},{5,-4}},{{null,17,0,-2,16,-
1},{13,18,18,14},{null,10}},{{7,17,0,3,3},{10,8,13,3 Matrices: [[9, 7, 9, 4]; [13, 4]; [15, 8, -2, 10, null]; [1, 5, 10, 8, 0, -3]; [5, -4]]  [[null, 17, 0, -2, 16, -1];
[13, 18, 18, 14]; [null, 10]]  [[7, 17, 0, 3, 3]; [10,
 Step 1: A(5, 6) x B(3, 6)
  My-code result: [[91, 369, 126, 80, 144, -9], [52, 293, 72, 30, 208, -13], [104, 379, 144, 82, 240, -15], [65, 207, 90, 68, 16, -1], [-52, 13, -72, -66, 80, -5]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 2: A(5, 6) x B(5, 6)
  My-code result: [[7639, 4079, 5865, 3972, -528, -144], [6428, 2658, 4875, 4779, -761, -208], [9048, 4122, 6421, 5769, -787, -240], [4033, 2689, 3139, 1104, -60, -16],
[-
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
 Step 3: A(5, 6) x B(2, 6)
  My-code result: [[194089, 110506, 188526, 7639, 22917, 61112], [154028, 93762, 143152, 6428, 19284, 51424], [221376, 131598, 209112, 9048, 27144, 72384], [108895,
57806,
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
 Step 4: A(5, 6) x B(3, 4)
  My-code result: [[6912071, 2899252, 726289, 2911335], [5443842, 2359104, 518228, 2310420], [7845786, 3360240, 775128, 3320640], [3906793, 1586348, 447703, 1633425], [-
80
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 5: A(5, 4) x B(2, 5)
  My-code result: [[117735876, 57985040, None, 2899252, None], [93635352, 47182080, None, 2359104, None], [134472312, 67204800, None, 3360240, None], [65917692, 31726960,
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=2)
 Step 6: A(5, 5) x B(2, 3)
```

```
  My-code result: [[927760640, 2751783820, 1648302264], [754913280, 2206625640, 1310894928], [1075276800, 3159566280, 1882612368], [507631360, 1528123700, 922847688], [-
86
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=2)
 Step 7: A(5, 3) x B(4, 5)
  My-code result: [[61020496092, 36858440800, -927760640, 4638803200, 34971421420], [48987165384, 29731617600, -754913280, 3774566400, 28163676840], [70113858984,
42480959
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=4)
```

AI Test #78 (synthetic_1078) — chain length 5

```
Integer[][][] test = new Integer[][][] {{{16,0,null}},{{-4,-2},{0,null,-4,17,-2,19},{-1,18,-2,10,-4},{3,17,-
5}},{{2,null,6,13,null},{20,15,8,null,12,1},{}},{{2,11},{10,11, Matrices: [[16, 0, null]]  [[-4, -2]; [0, null, -4, 17, -2, 19]; [-1, 18, -2, 10, -4]; [3, 17, -5]]  [[2,
null, 6, 13, null]; [20, 15, 8, null, 12, 1]; []]  [[2, 11]; [10,
 Step 1: A(1, 3) x B(4, 6)
  My-code result: [[-64, -32, 0, 0, 0, 0]]   Expected (strict):
Invalid/Discarded (Incompatible dims colsA=3 rowsB=4)
 Step 2: A(1, 6) x B(3, 6)
  My-code result: [[-768, -480, -640, -832, -384, -32]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 3: A(1, 6) x B(2, 3)
  My-code result: [[-6336, -13728, -9120]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
 Step 4: A(1, 3) x B(1, 4)
  My-code result: [[-38016, 19008, -120384, -107712]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=1)
```

AI Test #79 (synthetic_1079) — chain length 5

```
Integer[][][] test = new Integer[][][] {{{2,0,8},{},{10,2,-1}},{{2,15,14,9,-1},{2,10,13,-5,18},{20,null,3,-3,9}},{{0,-5,11,0,13}},{{7,-5,4,-3,6}},{{2,16},{null,12,18,4,-3} Matrices: [[2, 0, 8]; []; [10, 2, -1]]  [[2, 15, 14, 9, -1]; [2, 10, 13, -5, 18]; [20, null, 3, -3, 9]]  [[0, -5, 11, 0, 13]]  [[7, -5, 4, -3, 6]]  [[2, 16]; [null, 12, 18
 Step 1: A(3, 3) x B(3, 5)
  My-code result: [[164, 30, 52, -6, 70], [None, None, None, None, None], [4, 170, 163, 83, 17]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 2: A(3, 5) x B(1, 5)
  My-code result: [[0, -820, 1804, 0, 2132], [None, None, None, None, None], [0, -20, 44, 0, 52]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
 Step 3: A(3, 5) x B(1, 5)
  My-code result: [[0, 0, 0, 0, 0], [None, None, None, None, None], [0, 0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
 Step 4: A(3, 5) x B(3, 5)
  My-code result: [[0, 0, 0, 0, 0], [None, None, None, None, None], [0, 0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
```

AI Test #80 (synthetic_1080) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{-3,10,-4,8,null,1}},{{15},{},{18,19},{8,-2,13,3,-5,-1}},{{}},{{4,1,16,5},{9,-2,2,19,15,7}},{{7,null},{15,-3,6,19,10},{0,12}},{{-
3 Matrices: [[-3, 10, -4, 8, null, 1]]  [[15]; []; [18, 19]; [8, -2, 13, 3, -5, -1]]  [[]]  [[4, 1, 16, 5]; [9, -2, 2, 19, 15, 7]]  [[7, null]; [15, -3, 6, 19, 10]; [0,
12]]
 Step 1: A(1, 6) x B(4, 6)
  My-code result: [[-53, -92, 104, 24, -40, -8]]   Expected (strict):
Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 2: A(1, 6) x B(1, 0)
  My-code result: [[]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 3: A(1, 0) x B(2, 6)
  My-code result: [[0, 0, 0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=0 rowsB=2)
 Step 4: A(1, 6) x B(3, 5)
  My-code result: [[0, 0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 5: A(1, 5) x B(3, 6)
  My-code result: [[0, 0, 0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
 Step 6: A(1, 6) x B(1, 3)
  My-code result: [[0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
```

AI Test #81 (synthetic_1081) — chain length 6

```
Integer[][][] test = new Integer[][][] {{{-5,13,16,16}},{{9},{10,11,-5}},{{20,20,2,-4,8},{-5,12,17,-5,5},{-2,-3},{}},{{2,10,-2,null},{11,18,2}},{{1,14},{-4,10}},{{-
3,9,18, Matrices: [[-5, 13, 16, 16]]  [[9]; [10, 11, -5]]  [[20, 20, 2, -4, 8]; [-5, 12, 17, -5, 5]; [-2, -3]; []]  [[2, 10, -2, null]; [11, 18, 2]]  [[1, 14]; [-4, 10]]
[[-3, 9,
 Step 1: A(1, 4) x B(2, 3)
  My-code result: [[85, 143, -65]]   Expected (strict): Invalid/Discarded
(Incompatible dims colsA=4 rowsB=2)
 Step 2: A(1, 3) x B(4, 5)
  My-code result: [[1115, 3611, 2601, -1055, 1395]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=4)
 Step 3: A(1, 5) x B(2, 4)
  My-code result: [[41951, 76148, 4992, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=2)
 Step 4: A(1, 4) x B(2, 2)
  My-code result: [[-262641, 1348794]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=2)
 Step 5: A(1, 2) x B(3, 4)
  My-code result: [[23717421, -2363769, -4727538, -4990179]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=3)
```

AI Test #82 (synthetic_1082) — chain length 6

```
Integer[][][] test = new Integer[][][] {{{2,-1,-2,16,4},{17,0,14,8,15,-4},{4,15,17,7},{13,20}},{{-5,14,-2,9,16,16},{}},{{null,14,3},{-3,4,13,-1},{-4,2,7,19,5,3}},{{-1,-
5,4 Matrices: [[2, -1, -2, 16, 4]; [17, 0, 14, 8, 15, -4]; [4, 15, 17, 7]; [13, 20]]  [[-5, 14, -2, 9, 16, 16]; []]  [[null, 14, 3]; [-3, 4, 13, -1]; [-4, 2, 7, 19, 5,
3]]  [[
 Step 1: A(4, 6) x B(2, 6)
  My-code result: [[-10, 28, -4, 18, 32, 32], [-85, 238, -34, 153, 272, 272], [-20, 56, -8, 36, 64, 64], [-65, 182, -26, 117, 208, 208]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
 Step 2: A(4, 6) x B(3, 6)
  My-code result: [[-68, -36, 306, -104, -20, -12], [-578, -306, 2601, -884, -170, -102], [-136, -72, 612, -208, -40, -24], [-442, -234, 1989, -676, -130, -78]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 3: A(4, 6) x B(1, 4)
  My-code result: [[68, 340, -272, None], [578, 2890, -2312, None], [136, 680, -544, None], [442, 2210, -1768, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 4: A(4, 4) x B(4, 4)
  My-code result: [[-1972, 7208, -4080, None], [-16762, 61268, -34680, None], [-3944, 14416, -8160, None], [-12818, 46852, -26520, None]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 5: A(4, 4) x B(5, 2)
  My-code result: [[49776, 21624], [423096, 183804], [99552, 43248], [323544, 140556]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)
```

AI Test #83 (synthetic_1083) — chain length 8

```
Integer[][][] test = new Integer[][][] {{{13,16},{17,0,9,20,18,16}},{{null,9}},{{-4,-4,-5,null,19}},{{},{6},{-1,-5,13,null}},{{20,2,10}},{{0,5},{20,13,null,null}},{{-
5,18, Matrices: [[13, 16]; [17, 0, 9, 20, 18, 16]]  [[null, 9]]  [[-4, -4, -5, null, 19]]  [[]; [6]; [-1, -5, 13, null]]  [[20, 2, 10]]  [[0, 5]; [20, 13, null, null]]
[[-5, 18
 Step 1: A(2, 6) x B(1, 2)
  My-code result: [[None, 117], [None, 153]]   Expected (strict):
Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 2: A(2, 2) x B(1, 5)
  My-code result: [[None, None, None, None, None], [None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=1)
 Step 3: A(2, 5) x B(3, 4)
  My-code result: [[None, None, None, None], [None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
 Step 4: A(2, 4) x B(1, 3)
  My-code result: [[None, None, None], [None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=1)
 Step 5: A(2, 3) x B(2, 4)
  My-code result: [[None, None, None, None], [None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=2)
 Step 6: A(2, 4) x B(5, 6)
  My-code result: [[None, None, None, None, None, None], [None, None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)
 Step 7: A(2, 6) x B(1, 3)
  My-code result: [[None, None, None], [None, None, None]]
```

Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)

AI Test #84 (synthetic_1084) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{14,2,17},{-2},{12,-2,11},{17,4,-5,17,5,9}},{{null,15,12,1},{null,13,4},{10,1,null,10,3,14},{}}};
Matrices: [[14, 2, 17]; [-2]; [12, -2, 11]; [17, 4, -5, 17, 5, 9]]  [[null, 15, 12, 1]; [null, 13, 4]; [10, 1, null, 10, 3, 14]; []]
 Step 1: A(4, 6) x B(4, 6)
  My-code result: [[170, 253, 176, 184, 51, 238], [None, -30, -24, -2, None, None], [110, 165, 136, 122, 33, 154], [-50, 302, 220, -33, -15, -70]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
```

AI Test #85 (synthetic_1085) — chain length 6

```
Integer[][][] test = new Integer[][][] {{{10,6},{8},{-3},{7,-4,14,-1,18}},{{7,null,14,16,-5},{16,20,6,17,-2,20}},{{-4,-4},{4,null,4,-4}},{{-4,17,-5,14,null},{-
2,17},{17},{ Matrices: [[10, 6]; [8]; [-3]; [7, -4, 14, -1, 18]]  [[7, null, 14, 16, -5]; [16, 20, 6, 17, -2, 20]]  [[-4, -4]; [4, null, 4, -4]]  [[-4, 17, -5, 14, null];
[-2, 17]; [17
 Step 1: A(4, 5) x B(2, 6)
  My-code result: [[166, 120, 176, 262, -62, 120], [56, None, 112, 128, -40, None], [-21, None, -42, -48, 15, None], [-15, -80, 74, 44, -27, -80]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=2)
 Step 2: A(4, 6) x B(2, 4)
  My-code result: [[-184, -664, 480, -480], [-224, -224, None, None], [84, 84, None, None], [-260, 60, -320, 320]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
 Step 3: A(4, 4) x B(5, 6)
  My-code result: [[6864, -14416, -7720, -4976, -6720, -8640], [1344, -7616, 1120, -3136, None, None], [-504, 2856, -420, 1176, None, None], [-2280, -3400, 7060, -2040,
44
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)
 Step 4: A(4, 6) x B(2, 2)
  My-code result: [[-187408, -57664], [-99008, -30464], [37128, 11424], [-44200, -13600]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
 Step 5: A(4, 2) x B(2, 4)
  My-code result: [[-1715504, -691968, 230656, -807296], [-906304, -365568, 121856, -426496], [339864, 137088, -45696, 159936], [-404600, -163200, 54400, -190400]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
```

AI Test #86 (synthetic_1086) — chain length 6

```
Integer[][][] test = new Integer[][][] {{{-4,6,9},{null,-4,13,3,15},{20,-5,9,null,1},{3,5,null,null,9,-1}},{{-5,3,8,null,2,13}},{{20,-
4,18,17},{},{4,2,16},{8,7,6,11}},{{nu Matrices: [[-4, 6, 9]; [null, -4, 13, 3, 15]; [20, -5, 9, null, 1]; [3, 5, null, null, 9, -1]]  [[-5, 3, 8, null, 2, 13]]  [[20, -4,
18, 17]; []; [4, 2, 16]; [8, 7, 6, 11]
 Step 1: A(4, 6) x B(1, 6)
  My-code result: [[20, -12, -32, None, -8, -52], [None, None, None, None, None, None], [-100, 60, 160, None, 40, 260], [-15, 9, 24, None, 6, 39]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 2: A(4, 6) x B(4, 4)
  My-code result: [[272, -144, -152, 340], [None, None, None, None], [-1360, 720, 760, -1700], [-204, 108, 114, -255]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 3: A(4, 4) x B(1, 2)
  My-code result: [[None, -1088], [None, None], [None, 5440], [None, 816]]
Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=1)
 Step 4: A(4, 2) x B(1, 4)
  My-code result: [[None, None, None, None], [None, None, None, None], [None, None, None, None], [None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=1)
 Step 5: A(4, 4) x B(4, 5)
  My-code result: [[None, None, None, None, None], [None, None, None, None, None], [None, None, None, None, None], [None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
```

AI Test #87 (synthetic_1087) — chain length 4

```
Integer[][][] test = new Integer[][][] {{{10,3,-1,17,null,17},{9,1},{-4,-5,8,18,15,16}},{{-1,3,null,19,null},{-4,16,12,13,6,5},{15},{2,-5,null,9}},{{1,2,17,null,14},{-
2,11 Matrices: [[10, 3, -1, 17, null, 17]; [9, 1]; [-4, -5, 8, 18, 15, 16]]  [[-1, 3, null, 19, null]; [-4, 16, 12, 13, 6, 5]; [15]; [2, -5, null, 9]]  [[1, 2, 17, null,
14]; [
 Step 1: A(3, 6) x B(4, 6)
  My-code result: [[-3, -7, 36, 382, 18, 15], [-13, 43, 12, 184, 6, 5], [180, -182, -60, 21, -30, -25]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 2: A(3, 6) x B(4, 5)
  My-code result: [[11, 421, -51, None, -42], [-99, 615, -221, None, -182], [544, -2482, 3060, None, 2520]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
 Step 3: A(3, 5) x B(1, 4)
  My-code result: [[99, 198, 176, 143], [-891, -1782, -1584, -1287], [4896, 9792, 8704, 7072]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
```

AI Test #88 (synthetic_1088) — chain length 3

```
Integer[][][] test = new Integer[][][] {{{0,5,0,-5},{20,4}},{{9,7,15,1,null,-4},{-1,-3,6,3},{},{20}},{{null},{12,7,null},{18,null,11,13},{11,11,4,null}}};
Matrices: [[0, 5, 0, -5]; [20, 4]]  [[9, 7, 15, 1, null, -4]; [-1, -3, 6, 3]; []; [20]]  [[null]; [12, 7, null]; [18, null, 11, 13]; [11, 11, 4, null]]
 Step 1: A(2, 4) x B(4, 6)
  My-code result: [[-105, -15, 30, 15, None, 0], [176, 128, 324, 32, None, -80]]
Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 2: A(2, 6) x B(4, 4)
  My-code result: [[525, 60, 390, 390], [7720, 1248, 3692, 4212]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
```

AI Test #89 (synthetic_1089) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{18},{15,-2,null},{4},{-3,16,20,14,13},{3,18,8,14,null}},{{20,null,19,6,8,3},{3,4},{4,14,-3,-2},{null,null}},{{9,13,10},{3,-
3,12}, Matrices: [[18]; [15, -2, null]; [4]; [-3, 16, 20, 14, 13]; [3, 18, 8, 14, null]]  [[20, null, 19, 6, 8, 3]; [3, 4]; [4, 14, -3, -2]; [null, null]]  [[9, 13, 10];
[3, -3,
 Step 1: A(5, 5) x B(4, 6)
  My-code result: [[360, None, 342, 108, 144, 54], [294, -8, 285, 90, 120, 45], [80, None, 76, 24, 32, 12], [68, 344, -117, -58, -24, -9], [146, 184, 33, 2, 24, 9]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=4)
 Step 2: A(5, 6) x B(5, 4)
  My-code result: [[9270, 6462, 4230, 1296], [7647, 5331, 3369, 1080], [2060, 1436, 940, 288], [-861, -665, 4643, -216], [2271, 1555, 3749, 216]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
 Step 3: A(5, 4) x B(3, 3)
  My-code result: [[37080, 37080, 74160], [30588, 30588, 61176], [8240, 8240, 16480], [-3444, -3444, -6888], [9084, 9084, 18168]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
 Step 4: A(5, 3) x B(4, 6)
  My-code result: [[148320, 778680, 1520280, 1483200, 593280, 111240], [122352, 642348, 1254108, 1223520, 489408, 91764], [32960, 173040, 337840, 329600, 131840, 24720],
[
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=4)
 Step 5: A(5, 6) x B(1, 3)
  My-code result: [[-741600, -444960, 1483200], [-611760, -367056, 1223520], [-164800, -98880, 329600], [68880, 41328, -137760], [-181680, -109008, 363360]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 6: A(5, 3) x B(5, 4)
  My-code result: [[-14387040, 11865600, -4449600, -2966400], [-11868144, 9788160, -3670560, -2447040], [-3197120, 2636800, -988800, -659200], [1336272, -1102080, 413280,
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=5)
```

AI Test #90 (synthetic_1090) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{3,16},{null,4,10,0},{12,16,null},{}},{{0,null,7,10,2},{}}};
Matrices: [[3, 16]; [null, 4, 10, 0]; [12, 16, null]; []]  [[0, null, 7, 10, 2]; []]
 Step 1: A(4, 4) x B(2, 5)
  My-code result: [[0, None, 21, 30, 6], [None, None, None, None, None], [0, None, 84, 120, 24], [None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=2)
```

AI Test #91 (synthetic_1091) — chain length 3

```
Integer[][][] test = new Integer[][][] {{{null,20,-2,null,5},{},{},{-5,19,5},{17}},{{19},{15,19,-1,1}},{{13,19,12,19}}};
Matrices: [[null, 20, -2, null, 5]; []; []; [-5, 19, 5]; [17]]  [[19]; [15, 19, -1, 1]]  [[13, 19, 12, 19]]
 Step 1: A(5, 5) x B(2, 4)
  My-code result: [[300, 380, -20, 20], [None, None, None, None], [None, None, None, None], [190, 361, -19, 19], [323, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=2)
 Step 2: A(5, 4) x B(1, 4)
  My-code result: [[3900, 5700, 3600, 5700], [None, None, None, None], [None, None, None, None], [2470, 3610, 2280, 3610], [4199, 6137, 3876, 6137]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=1)
```

AI Test #92 (synthetic_1092) — chain length 6

```
Integer[][][] test = new Integer[][][] {{{9},{-4,20,18},{-4,0,null,20,19,-2},{-5,0,14,14},{14,16,10,0}},{{null,11},{3,3},{}},{{14,17,4,7,-4},{null,6,2,-5,-1},{-5,16,-
4,nul Matrices: [[9]; [-4, 20, 18]; [-4, 0, null, 20, 19, -2]; [-5, 0, 14, 14]; [14, 16, 10, 0]]  [[null, 11]; [3, 3]; []]  [[14, 17, 4, 7, -4]; [null, 6, 2, -5, -1]; [-
5, 16, -
 Step 1: A(5, 6) x B(3, 2)
  My-code result: [[None, 99], [60, 16], [0, -44], [0, -55], [48, 202]]
Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 2: A(5, 2) x B(3, 5)
  My-code result: [[None, 594, 198, -495, -99], [840, 1116, 272, 340, -256], [0, -264, -88, 220, 44], [0, -330, -110, 275, 55], [672, 2028, 596, -674, -394]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=3)
 Step 3: A(5, 5) x B(5, 5)
  My-code result: [[6732, 5049, 1683, 2772, -5940], [43688, 43356, 11492, 12688, 4080], [-2992, -2244, -748, -1232, 2640], [-3740, -2805, -935, -1540, 3300], [47816,
44334
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 4: A(5, 5) x B(5, 2)
  My-code result: [[-49302, 16830], [83112, 114920], [21912, -7480], [27390, -9350], [-27732, 124100]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
 Step 5: A(5, 2) x B(5, 5)
  My-code result: [[-79398, 302940, 201960, 67320, None], [1136888, 2068560, 1379040, 459680, None], [35288, -134640, -89760, -29920, None], [44110, -168300, -112200, -
374
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=2 rowsB=5)
```

AI Test #93 (synthetic_1093) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{null,14,7},{18,10,17,20}},{{20,12},{5,15,null,15},{},{11,-3,19,18,18},{9,17,19}},{{},{10,-1,2,-
5},{8,9,1,19}},{{5,13,17,5},{2,nul Matrices: [[null, 14, 7]; [18, 10, 17, 20]]  [[20, 12]; [5, 15, null, 15]; []; [11, -3, 19, 18, 18]; [9, 17, 19]]  [[]; [10, -1, 2, -
5]; [8, 9, 1, 19]]  [[5, 13, 17, 5]; [
 Step 1: A(2, 4) x B(5, 5)
  My-code result: [[70, 210, None, 210, None], [630, 306, 380, 510, 360]]
Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)
 Step 2: A(2, 5) x B(3, 4)
  My-code result: [[2100, -210, 420, -1050], [6100, 3114, 992, 5690]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
 Step 3: A(2, 4) x B(4, 5)
  My-code result: [[-2520, 25410, 31500, 11130, 4200], [105008, 99346, 216900, 56498, 9920]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
 Step 4: A(2, 5) x B(5, 6)
  My-code result: [[122430, -109830, 166950, -19950, 104160, -30240], [621478, -1021118, 847470, 1840530, 2880936, 1260096]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing B element)
 Step 5: A(2, 6) x B(1, 5)
  My-code result: [[None, None, -489720, 2326170, None], [None, None, -2485912, 11808082, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=1)
 Step 6: A(2, 5) x B(3, 6)
  My-code result: [[-9794400, -9304680, -2938320, -9304680, None, None], [-49718240, -47232328, -14915472, -47232328, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
```

AI Test #94 (synthetic_1094) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{6,null,2,5,2,0}},{{null,1,-3,12},{null,1,11,10,6},{12,-3,2,-3}},{{2,-3,null,-5,-5},{3,19,null},{4,15,15}},{{-1,19,15,-
2}},{{null, Matrices: [[6, null, 2, 5, 2, 0]]  [[null, 1, -3, 12]; [null, 1, 11, 10, 6]; [12, -3, 2, -3]]  [[2, -3, null, -5, -5]; [3, 19, null]; [4, 15, 15]]  [[-1, 19,
15, -2]]  [[n
 Step 1: A(1, 6) x B(3, 5)
  My-code result: [[24, 0, -14, 66, None]]   Expected (strict):
Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 2: A(1, 5) x B(3, 5)
  My-code result: [[-8, -282, -210, -120, -120]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
 Step 3: A(1, 5) x B(1, 4)
  My-code result: [[8, -152, -120, 16]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
 Step 4: A(1, 4) x B(1, 3)
  My-code result: [[None, 32, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=1)
 Step 5: A(1, 3) x B(1, 1)
  My-code result: [[None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=3 rowsB=1)
 Step 6: A(1, 1) x B(4, 5)
  My-code result: [[None, None, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=1 rowsB=4)
```

AI Test #95 (synthetic_1095) — chain length 5

```
Integer[][][] test = new Integer[][][] {{{}},{{11},{7,18,7,2,15},{}},{{0,15,1,7},{-3,null,-3,2},{}},{{6,17,-1,null},{null,null}},{{13,18,4,17,6},{20},{17,14,3,14,-
1},{17,1 Matrices: [[]]  [[11]; [7, 18, 7, 2, 15]; []]  [[0, 15, 1, 7]; [-3, null, -3, 2]; []]  [[6, 17, -1, null]; [null, null]]  [[13, 18, 4, 17, 6]; [20]; [17, 14, 3,
14, -1]; [
 Step 1: A(1, 0) x B(3, 5)
  My-code result: [[0, 0, 0, 0, 0]]   Expected (strict): Invalid/Discarded
(Incompatible dims colsA=0 rowsB=3)
 Step 2: A(1, 5) x B(3, 4)
  My-code result: [[0, 0, 0, 0]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
 Step 3: A(1, 4) x B(2, 4)
  My-code result: [[0, 0, 0, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=2)
 Step 4: A(1, 4) x B(5, 6)
  My-code result: [[0, 0, 0, 0, 0, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)
```

AI Test #96 (synthetic_1096) — chain length 5

```
Integer[][][] test = new Integer[][][] {{{null,9,4,7},{1,null,8,15,7,17},{12,2,9}},{{8,6,16,-5,15},{-5,18}},{{null,10,14,12,1,13},{-5},{1,-
5,13},{null,null,4,13,19}},{{20} Matrices: [[null, 9, 4, 7]; [1, null, 8, 15, 7, 17]; [12, 2, 9]]  [[8, 6, 16, -5, 15]; [-5, 18]]  [[null, 10, 14, 12, 1, 13]; [-5]; [1, -
5, 13]; [null, null, 4, 13, 19]]
 Step 1: A(3, 6) x B(2, 5)
  My-code result: [[-45, 162, None, None, None], [8, 6, 16, -5, 15], [86, 108, 192, -60, 180]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
 Step 2: A(3, 5) x B(4, 6)
  My-code result: [[-810, -450, -630, -540, -45, -585], [-14, 0, 300, 31, -87, 104], [-348, -100, 3460, 252, -1054, 1118]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=4)
 Step 3: A(3, 6) x B(2, 6)
  My-code result: [[-25200, -2700, 900, -1350, -1800, -3600], [-280, 0, 0, 0, 0, 0], [-8960, -600, 200, -300, -400, -800]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
 Step 4: A(3, 6) x B(4, 6)
  My-code result: [[-453600, -22950, -436500, 2250, -49950, -48600], [-5040, 0, -4760, 0, 0, 0], [-161280, -5100, -154120, 500, -11100, -10800]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=4)
```

AI Test #97 (synthetic_1097) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{20,9,-4},{},{null},{2,10,-5,15,17}},{{-4,null},{},{5,12,18,1}}};
Matrices: [[20, 9, -4]; []; [null]; [2, 10, -5, 15, 17]]  [[-4, null]; []; [5, 12, 18, 1]]
 Step 1: A(4, 5) x B(3, 4)
  My-code result: [[-100, -48, -72, -4], [None, None, None, None], [None, None, None, None], [-33, -60, -90, -5]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=3)
```

AI Test #98 (synthetic_1098) — chain length 7

```
Integer[][][] test = new Integer[][][] {{{},{11,4,10,-1},{10,5},{1}},{{16,-4,-5},{12,11,7,-2,null,10},{11,6,0,6}},{{0,-3,17,null},{8,-3,12,7,-
4},{15,2,16}},{{18},{9,null,1 Matrices: [[]; [11, 4, 10, -1]; [10, 5]; [1]]  [[16, -4, -5]; [12, 11, 7, -2, null, 10]; [11, 6, 0, 6]]  [[0, -3, 17, null]; [8, -3, 12, 7,
-4]; [15, 2, 16]]  [[18]; [9, n
 Step 1: A(4, 4) x B(3, 6)
  My-code result: [[None, None, None, None, None, None], [334, 60, -27, 52, None, 40], [220, 15, -15, -10, None, 50], [16, -4, -5, None, None, None]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
 Step 2: A(4, 6) x B(3, 5)
  My-code result: [[None, None, None, None, None], [75, -1236, 5966, 420, -240], [-105, -735, 3680, 105, -60], [-107, -46, 144, -28, 16]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
 Step 3: A(4, 5) x B(5, 5)
  My-code result: [[None, None, None, None, None], [54806, 8812, -23448, 36, -17304], [29525, 6580, -13530, 435, -10290], [-1228, 496, -748, 126, -644]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 4: A(4, 5) x B(5, 4)
  My-code result: [[None, None, None, None], [729256, 55058, 274678, 1041314], [394045, 32570, 155455, 560975], [-17610, -346, -3872, -23332]]
  Expected (strict): Invalid/Discarded (Invalid/Discarded due to missing A element)
 Step 5: A(4, 4) x B(5, 6)
  My-code result: [[None, None, None, None, None, None], [25207834, 5870722, 13211730, 1098712, -1373390, 3570814], [13684660, 3237475, 7103625, 621820, -777275,
2020915],
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=5)
 Step 6: A(4, 6) x B(5, 4)
  My-code result: [[None, None, None, None], [55922750, 58756004, 32246070, -10987120], [29408075, 31536800, 16755375, -6218200], [-1667920, -1449772, -1040960, 154880]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=5)
```

AI Test #99 (synthetic_1099) — chain length 5

```
Integer[][][] test = new Integer[][][] {{{6,20,3,6,16},{1,-1,7,13}},{{13,5,null,17}},{{4,-4,1,8},{2,16,5,15,17},{5,-4}},{{-1},{-4,5,19,null,-2,-
5},{},{11,null}},{8,null}, Matrices: [[6, 20, 3, 6, 16]; [1, -1, 7, 13]]  [[13, 5, null, 17]]  [[4, -4, 1, 8]; [2, 16, 5, 15, 17]; [5, -4]]  [[-1]; [-4, 5, 19, null, -2,
-5]; []; [11, null]]  [[8, n
 Step 1: A(2, 5) x B(1, 4)
  My-code result: [[78, 30, None, 102], [13, 5, None, 17]]   Expected
(strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=1)
 Step 2: A(2, 4) x B(3, 5)
  My-code result: [[372, 168, 228, 1074, 510], [62, 28, 38, 179, 85]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=4 rowsB=3)
 Step 3: A(2, 5) x B(4, 6)
  My-code result: [[10770, 840, 3192, None, -336, -840], [1795, 140, 532, None, -56, -140]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=5 rowsB=4)
 Step 4: A(2, 6) x B(3, 4)
  My-code result: [[155544, 46032, 18984, 65016], [25924, 7672, 3164, 10836]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=3)
```

AI Test #100 (synthetic_1100) — chain length 2

```
Integer[][][] test = new Integer[][][] {{{12,0,5,-1,-1,7}},{{18},{16}}};
Matrices: [[12, 0, 5, -1, -1, 7]]  [[18]; [16]]
 Step 1: A(1, 6) x B(2, 1)
  My-code result: [[216]]
  Expected (strict): Invalid/Discarded (Incompatible dims colsA=6 rowsB=2)
```

Coverage Summary

AI tests generated: 100