**********CODE**********

*MORE COMMENTS ARE KEPT IN ON THIS OCCASION

```
import java.util.Scanner;
import java.util.Arrays;
public class Main
{
   public static void main(String[] args) {
      double hours;
      double mins;
      clock c;
//do {
Scanner reader = new Scanner(System.in); // Reading from System.in
System.out.println("Enter a number between 0-23 to denote HH   in  HH:mm 24 hour clock");
hours = reader.nextInt(); // Scans the next token of the input as an int.
System.out.println("Enter a number between 0-59 to denote MM   in  hh:MM 24 hour clock");
mins = reader.nextInt(); // Scans the next token of the input as an int.
//once finished
reader.close();


System.out.println("\n");
// THE FUNCTION HAS TO START here

c= new clock(hours,mins);
}

}
```

```
class clock
{
   double hours; //counter
   double mins; //counter
   double degrees;
   double hr24Tohr12;
   double angleHour;
   double angleMinute;

   double angleH;
   double angleM;


public clock(double hours, double mins)
{
   this.hours=hours;
   this.mins=mins;
   double temp;
   double Angle;

   if (hours>12)                    //conversion from hh:mm  to  h:mm
   {
      hours=hours-12;

   }

   System.out.println("This is hours: " + hours);
   System.out.println("This is mins: " + mins);

   if (hours==12)              //ensure  any loops can execute from 0:00  to  11:59 in forthcoming code
   {
```

```
    hours=0;
  }

  angleMinute = (mins/60)*360;
  angleHour  = ((hours/12)*360) + ((angleMinute/360)*30);



  System.out.println("Angle of minute hand from 12 o'clock: " + angleMinute);
  System.out.println("Angle of hour hand from 12 o'clock: " + angleHour);

  Angle = Math.round(Math.abs(angleHour-angleMinute));

// This is to ensure that hands can not be further than 6 o'clock apart
  if ((angleHour-angleMinute)>180)
  {
    Angle = 360 - Math.round(Math.abs(angleHour-angleMinute));

  }

  System.out.println("Angle is:  " +  Angle);

  // This is now checking if there are any moments when angle between minute and hour hand is
ZERO

    double hrs;
    double minutes;
    double seconds;
    double millisecs;

    int z=0;
```

```
for (double i=0;i<12;i++)
{
   for (int j=0;j<60;j++)
   {
      for (int k=0;k<60;k++)
      {
         for (int m=0;m<1000;m++)
         {

      millisecs=m;
      hrs=i;
      minutes=j;
      seconds=k;
      z++;

      //each minute is 1/60th of the clock (6 degrees)
      //position of minute hand is influenced by second hand also.
      angleM = (minutes/60)*360 +  ((seconds/60/60)*360) + ((millisecs/1000/60/60)*360);

      //each hour is 1/12th of the clock (30 degrees)
      //position hour hand is influenced by minute and second hand
      angleH = ((hrs/12)*360) + ((minutes/60/12)*360) + ((seconds/60/60/12)*360) + +
((millisecs/1000/60/60/12)*360);

      System.out.println("Hours is: " + hrs + ": " + angleH);
      System.out.println("Minutes is: " + minutes + ": " + angleM);
      System.out.println("Seconds is: " + (seconds   + (millisecs/1000)));
      System.out.println("difference is: " + Math.abs(angleH-angleM) );


      System.out.println("\n");
```

```
            temp=angleH-angleM;

            if (Math.abs(temp)>180)
            {
            temp = 360 - temp;
            }


            if (Math.abs(temp)==0)
            {
               System.out.println("Hours and minute hand coincides:");
               System.out.println("hours: " + hrs);
               System.out.println("mins:" + minutes);
               System.out.println("seconds:" + seconds);
               break;
            }

            //here

               }
            }
         }


      }


}
```

}