1. **Test full program: (1, -10) and (-3, 2), and 2.5 for x:**

2. **Test vertical line: (5, 7) and (5, -3)**

```
Welcome!
Enter coordinate 1: (1, -10)
Enter coordinate 2: (-3, 2)

The two points are: (1, -10) and (-3, 2)
The equation of the line between these points is: y = -3x - 7.0
The slope of this line is: -3.0
The y-intercept of the line is: -7.0
The distance between the two points is: 12.65

Enter a value for x: 2.5

The point on the line is (2.5, -14.5)
```

```
Welcome!
Enter coordinate 1: (5, 7)
Enter coordinate 2: (5, -3)

These points are on a vertical line: x = 5
```

3. Test Code

```
y = 5/4x + 6.25
y = 1/7x - 1.16
y = 7/3x + 5.34
y = -8/6x + 2.67
y = 8/6x + 2.67
y = 5x - 20.0
y = 2x
y = -7x + 44.0
y = x + 4.0
y = -x + 1.0
y = x
y = -10/4x + 19.5
y = 10/4x - 5.5
y = 12.0
y = -2.0
y = 5/4x
y = -3x - 7.0
```

```
distance: 6.4
y-int: 6.25
slope: 1.25
equation string: y = 5/4x  + 6.25
```

```
x coord: (5.2, 12.75)
```

```
rounded (4.58): 4.58
```

```
-----line info--------
Original Points: (-1, 5) and (3, 10)
Equation: y = 5/4x  + 6.25
Slope: 1.25
Y Intercept: 6.25
Distance: 6.4
```

3. **Test Code:**

```
   LinearEquation eq1 = new LinearEquation(-1, 5, 3, 10); // good
for 5/4 slope
   LinearEquation eq2 = new LinearEquation(-6, -2, 1, -1); //
good for 1/7 slope
   LinearEquation eq3 = new LinearEquation(2, 10, -1, 3); // good
for 7/3 slope
   LinearEquation eq4 = new LinearEquation(-1, 4, -7, 12); //
good for -8/6 slope
   LinearEquation eq5 = new LinearEquation(1, 4, 7, 12); // good
for 8/6 slope
   LinearEquation eq6 = new LinearEquation(4, 0, 6, 10); // good
for 5 slope
   LinearEquation eq7 = new LinearEquation(7, 14, 5, 10); // good
for 2 slope NO Y-INT
   LinearEquation eq8 = new LinearEquation(6, 2, 8, -12); // good
for -4 slope
   LinearEquation eq9 = new LinearEquation(-1, 3, 2, 6); // good
for +1 slope
   LinearEquation eq10 = new LinearEquation(-1, 2, -3, 4); //
good for -1 slope
   LinearEquation eq11 = new LinearEquation(-2, -2, 4, 4); //
good for line through origin
   LinearEquation eq12 = new LinearEquation(3, 12, 7, 2); // good
for -10/4 slope
   LinearEquation eq13 = new LinearEquation(7, 12, 3, 2); // good
for 10/4 slope
   LinearEquation eq14 = new LinearEquation(7, 12, 3, 12); //
good for horizontal
   LinearEquation eq15 = new LinearEquation(16, -2, 3, -2); //
good for horizontal
   LinearEquation eq16 = new LinearEquation(0, 0, 4, 5); // good
for 5/4 slope
   LinearEquation eq17 = new LinearEquation(1, -10, -3, 2); //
good for -3x - 7
   System.out.println(eq1.equation());
   System.out.println(eq2.equation());
   System.out.println(eq3.equation());
   System.out.println(eq4.equation());
   System.out.println(eq5.equation());
   System.out.println(eq6.equation());
   System.out.println(eq7.equation());
   System.out.println(eq8.equation());
   System.out.println(eq9.equation());
   System.out.println(eq10.equation());
```

```
y = 5/4x + 6.25
y = 1/7x - 1.16
y = 7/3x + 5.34
y = -8/6x + 2.67
y = 8/6x + 2.67
y = 5x - 20.0
y = 2x
y = -7x + 44.0
y = x + 4.0
```

```java
System.out.println(eq11.equation());
System.out.println(eq12.equation());
System.out.println(eq13.equation());
System.out.println(eq14.equation());
System.out.println(eq15.equation());
System.out.println(eq16.equation());
System.out.println(eq17.equation());


System.out.println("-------------");
double distance = eq1.distance();
System.out.println("distance: " + distance);

double yInt = eq1.yIntercept();
System.out.println("y-int: " + yInt);
double slope = eq1.slope();
System.out.println("slope: " + slope);
String eq = eq1.equation();
System.out.println("equation: " + eq);
String xCoord = eq1.coordinateForX(5.2);
System.out.println("x coord: " + xCoord);
double rounded = eq1.roundedToHundredth(4.57812);
System.out.println("rounded (4.58): " + rounded);
System.out.println("-----line info--------");
String lineInfo = eq1.lineInfo();
System.out.println(lineInfo);
```

```
y = -x + 1.0
y = x
y = -10/4x + 19.5
y = 10/4x - 5.5
y = 12.0
y = -2.0
y = 5/4x
y = -3x - 7.0
```

```
distance: 6.4
y-int: 6.25
slope: 1.25
equation string: y = 5/4x  + 6.25
x coord: (5.2, 12.75)
rounded (4.58): 4.58
-----line info--------
Original Points: (-1, 5) and (3, 10)
Equation: y = 5/4x  + 6.25
Slope: 1.25
Y Intercept: 6.25
Distance: 6.4
```