INTE2512 Object-Oriented Programming

Lab - Introduction

1. Write a program that get three integers from the user and then prints them out in ascending order.

2. Write a program that repeatedly prompts the user to enter a positive integer and checks whether the number is divisible by **both 5 and 6**, or **neither** of them, or **just one** of them. The program ends when the user enters a negative integer or zero.

   Sample run:

```
Enter a positive integer: 10
10 is divisible by 5 or 6, but not both
Enter a positive integer: 30
30 is divisible by both 5 and 6
Enter a positive integer: 23
23 is neither divisible by 5 nor 6
Enter a positive integer: -1
Goodbye!
```

3. Write a program that displays all the numbers from 100 to 200, ten numbers per line, that are divisible by 5 or 6, but not both. Numbers are separated by exactly one space.

4. Write a program that uses a suitable loop to display a conversion table nicely as the one below, knowing that 1 mile is 1.609 kilometers. *Hint: use System.out.printf().*

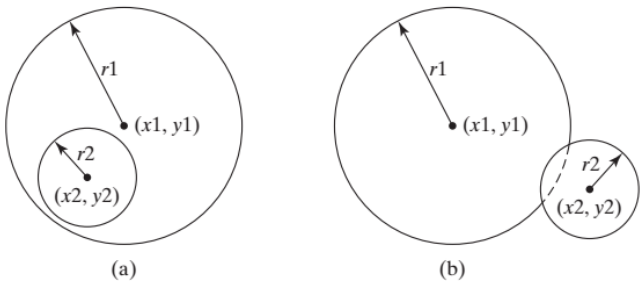
Miles	Kilometers	Kilometers	Miles
1	1.61	20	12.43
2	3.22	25	15.54
3	4.83	30	18.65
4	6.44	35	21.75
5	8.05	40	24.86
6	9.65	45	27.97
7	11.26	50	31.08
8	12.87	55	34.18
9	14.48	60	37.29
10	16.09	65	40.40

5. Write a program that prompts the user to enter an integer from 1 to 15 and displays a pyramid, as shown in the following sample run:

```
Enter the number of lines: 7 Enter
                1
            2   1   2
        3   2   1   2   3
    4   3   2   1   2   3   4
5   4   3   2   1   2   3   4   5
    6   5   4   3   2   1   2   3   4   5   6
7   6   5   4   3   2   1   2   3   4   5   6   7
```

6. Write a program that prompts the user to enter the center coordinates and radiuses of two circles and determines whether the second circle is inside the first or overlaps with the first, as shown in the below Figure.

   *Hint: circle2 is **inside** circle1 if the distance between the two centers <= |r1 - r2| and circle2 **overlaps** circle1 if the distance between the two centers <= r1 + r2*
   Test your program to cover all cases.



(a) A circle is inside another circle. (b) A circle overlaps another circle

Sample run:

```
Enter circle1's center x-, y-coordinates, and radius: 0.5 5.1 13 Enter
Enter circle2's center x-, y-coordinates, and radius: 1 1.7 4.5 Enter
circle2 is inside circle1
```