CSCE 111 – Homework 1
Due date 09/15 end of day

Submit a .zip file with your answers to eCampus, file name should be in the format
LastName_FirstName_hw1.zip.

1 – (Code only) HOURGLASS; Write a program that displays the following pattern:

```
XXXXXXX
 XXXXX
  XXX
   X
  XXX
 XXXXX
XXXXXXX
```

Name your class Hw1pr1 and your file Hw1pr1.java

2 – (Code only) Write a program that asks the user to enter 3 doubles using the Scanner for keyboard input. Declare 3 double variables to store these numbers. Calculate the average of these 3 numbers and output the result. You do not need to round the result. Name your class Hw1pr2 and your file Hw1pr2.java

Example console output:

Please enter the first number: 4.5
Please enter the second number: 3.4
Please enter the third number: 7.34

The average of these numbers is 4.86

3 – (Code and report) Write a program that calculates and outputs the results of each of these equations:
    A: (31 - 9) + (4 * 25) + 3
    B: 4 + 7 - 2 / 3
    C: (2 / 5 + 5 - 3) * 8
    D: 9.93 / (5 - 4.1) * 4.1

You do not need to round your results. Check your answers using a calculator. Do the results match? Explain any differences.

Name your class Hw1pr3 and your file Hw1pr3.java

4 – (Code only) Write a program that asks the user to enter their name (using Scanner). Store this value in a String variable. Then output the middle character of the string. If the string has an even number of letters, it has 2 middle characters. In this case, you can output the right-middle character.

Example console output:
    Please enter your name: Zain
    The middle character is i

Name your class Hw1pr4 and your file Hw1pr4.java

5 – (Report only) Answer the following questions:
A: Describe the naming conventions for classes and variables identifiers.

B: Explain what is happening at each line of the following code:
```
int x = 5, y = 20;
x += 32;
y /= 4;
System.out.println("x = " + x + ", y = " + y);
```

C: Cite three different primitive data types and explain the differences between them.

6 – (Code only) Write a program to help the user determine if it is worth buying a stock. Ask the user for the number of shares they will purchase, the price they will purchase them at, the price they plan to sell them at, and the percentage of broker commission for EACH transaction. Then output the amount of money they will gain or lose.
To check your results, you can also use an online calculator available here: https://salecalc.com/stock

Example output:

    The number of shares to be bought: 30
    The purchase price of the stock: 74.53
    The sell price of the stock: 80.81
    The percentage commission charged by the broker for the purchase: 7
    The percentage commission charged by the broker for the sell: 5

    You will net a value of: -89.33

You do not need to round the results.

Name your class Hw1pr6 and your file Hw1pr6.java