Lab 3

Notes

- Type all the programs from scratch. Do not copy and paste. It will help you to learn the syntax.
- If your program doesn't work on the first try don't worry. Debugging is a skill that you will develop over time.
- Remember to save and recompile every time you make a change to your program.
- If you get errors when you compile, go back and make sure you typed everything correctly. Proper capitalization, spelling, matching {}, etc.
- If you get stuck, ask your TA for help. That's what they are here for!

Problems - All of your programs should use Variables!

1. Write a program the finds the area of a circle. The radius is 4.5 inches. You can use the value of 3.14159 for π. Save all your values in variables and display your result using a print statement. The formula is:

- area = π * radius *radius

2. Modify the program to find the circumference of the circle. The formula is:

- circumference = 2 * π * radius

3. Write a program that converts feet to meters. One foot is 0.305 meters. Save all your values in variables and display your result using a print statement.

4. Given the integer 512, write a program that finds if it is less than a number of your choosing. Save the result in a boolean variable and then print the result. Do not use if/else statements for this problem. Just print the result of the comparison.

5. Write a program that saves a character in a variable and then converts it to it's ascii value. Print the result.

6. Practice converting between different data types. Write a program that saves a double in a variable and then casts it to an int. Print the result. Explore other data type conversions as well.

7. What is printed by the following program? Work through the program step by step to determine the value of the variable d. Then run the code.

```java
class Test
{
    public static void main(String[] args)
    {
        int x = 1;
        double y = 2.5;
        boolean b;

        b = (x > y);
        b = !b;

        boolean c = b && (x < y);

        boolean d = c || (x > y);

        System.out.println(d);
    }
}
```

8. Write a program that converts a temperature from Fahrenheit to Celsius and prints the result.

- The formula to convert Fahrenheit to Celsius is C = (F - 32) * 5/9, where:

- C is the temperature in Celsius

- F is the temperature in Fahrenheit

- For example, if the temperature in Fahrenheit (F) is 68 degrees, the program should calculate the equivalent temperature in Celsius (C) and print it. Both values should be printed with one decimal place.

9. A dog is 264 ounces, save this value in a variable. Write a program that determines how many pounds and ounces the dog is. Save the results in variables and print the results.

- Hint: 1 pound = 16 ounces
- Modulus can be helpful.

10. Write a program that checks if an integer value is equal to, less than, or greater than 100. Save the result in a boolean variable and then print. Use if/else/else if statements for this problem. Run your program a few times with different values to test it.