

CS161: Introduction to Computer Science

Lab Assignment 2

For today's lab, you'll gain practice using **variables**, **arithmetic operators**, and **casting**. To get started, open BlueJ and create a new project called `lab2`. Make sure you create this new project inside your `cs161` directory.

Warm Up

Answer exercise 2.11 from the textbook skipping parts (h) through (m). Write your answers in the README file.

Check that your answers are correct by creating a new Java class called `BookExercise` and copying the code from the book into the `main()` method. Insert print statements and run the `main()` method to check that your answers are correct. For example,

```
public static void main(String[] args){
    int iResult, num1 = 25, num2 = 40, num3 = 17, num4 = 5;
    double fResult, val1 = 17.0, val2 = 12.78;

    iResult = num1 / num4;
    System.out.println("iResult equals " + iResult);
}
```

Arithmetic Operations

Create a new Java class named `Arithmetic` with a `main()` method. You should complete the following exercises inside the `main()` method. Use comments and whitespace to organize your code and make it clear where each exercise begins.

1. Create a variable to hold the radius r of a circle. Given the radius, compute and print the circumference and area. The equations you'll need are,

$$c = 2 * \pi * r$$

$$a = \pi * r^2$$

You can use 3.1415 for π

2. Create a variable to hold some amount of Japanese currency (yen). Compute and print the equivalent amount of US dollars and cents. The current exchange rate between yen and dollars is:

$$1 \text{ yen} = 0.009129 \text{ dollars}$$

For example, if we have 2400.50 Japanese yen your code might print:

```
2400.5 Japanese yen is equivalent to:
US dollars: 21
US cents: 0.8445500000000017
```

Ignore the long decimal.

3. If you were to travel to the surface of another planet, although your *mass* would stay the same, your *weight* would change. Create a variable to hold a person's weight (on Earth). Using the table below, choose 3 different planets and compute how much that person would weigh on the surface of those planets. Print out the person's weight on Earth and the planets you chose.

Planet	Gravitational Factor
Sun	27.9
Mercury	0.38
Venus	0.91
Earth	1.0
Moon	0.17
Mars	0.38
Jupiter	2.54
Saturn	1.08
Uranus	0.91
Neptune	1.19
Pluto	0.06

Submitting your lab assignment

Rename your `lab2` folder with your name. For example, `lab2_John_Doe`. After renaming, zip (i.e. compress) and submit via Canvas.