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.

1 Warm Up

With your partner, answer exercise 2.11 from the textbook. Write your answers in the README file.

Ex 2.11(a, c, e-g, n-q) Given the following declarations, What result is stored in each of the listed assignment statements?

```java
int iResult, num1 = 25, num2 = 40, num3 = 17, num4 = 5;
double fResult, val1 = 17.0, val2 = 12.78;
```

a. iResult = num1/num4;
c. iResult = num3/num4;
e. fResult = val1/num4;
f. fResult = val1/val2;
g. iResult = num1/num2;
n. iResult = num3%num4;
o. iResult = num2% num3;
p. iResult = num3% num2;
q. iResult = num2%num4;

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,

```java
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);
}
```

2 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 to organize your code and make it clear where each exercise begins.

Note: Part of what you are practicing this week is the use of the final keyword. Use final whenever you have a constant – i.e., a variable whose value is a constant.
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 $\pi$

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 yen = 0.009129 dollars

For example, if we have 2400.50 Japanese yen your code might print:
2400.5 Japanese yen is equivalent to 21.9141645US dollars.

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.

<table>
<thead>
<tr>
<th>Planet</th>
<th>Gravitational Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sun</td>
<td>27.9</td>
</tr>
<tr>
<td>Mercury</td>
<td>0.38</td>
</tr>
<tr>
<td>Venus</td>
<td>0.91</td>
</tr>
<tr>
<td><strong>Earth</strong></td>
<td><strong>1.0</strong></td>
</tr>
<tr>
<td>Moon</td>
<td>0.17</td>
</tr>
<tr>
<td>Mars</td>
<td>0.38</td>
</tr>
<tr>
<td>Jupiter</td>
<td>2.54</td>
</tr>
<tr>
<td>Saturn</td>
<td>1.08</td>
</tr>
<tr>
<td>Uranus</td>
<td>0.91</td>
</tr>
<tr>
<td>Neptune</td>
<td>1.19</td>
</tr>
<tr>
<td>Pluto</td>
<td>0.06</td>
</tr>
</tbody>
</table>

3 Submitting your lab assignment

Rename your lab2 folder with both you and your partner’s name. For example, lab2_John_Doe_Jane_Doe. After renaming, zip (i.e. compress) and submit via Canvas.