

Chapter 3 Laboratory Exercise

Prelab Assignment

Your instructor should provide a handout describing the system you are expected to use to complete this exercise.

1. What are the three primitive Java types discussed in Chapter 3?
2. What is difference between a variable and a symbolic constant?
3. What is the value of the expression $3 * 5 \% 2 + 4$?
4. Write a Java program that reads two integers input by the user and outputs their quotient.

2. Write and test a Java application program that prompts the user to enter the integer numerator and denominator for a fraction. Your program should compute the decimal equivalent for the fraction and produce output similar to the following for the fraction $3/8$.

The fraction $3 / 8$ has the decimal equivalent 0.375

- a. Test your program using the fraction $2/3$. What did your output look like?

- b. Test your program using the fraction $1/2$. What did your output look like?

3. Assume the following are in effect:

```
int i, j, k;  
double x, y;
```

4. Execute the following statements assuming $i = 3$, $j = 4$, and $y = -1.0$ and assuming that each statement is executed independently of the others.

```
k = i / j;
```

```
k = i % j;
```

```
k = j % i;
```

```
x = i / j;
```

```
x = (double i) / j;
```

```
y = x + j * y;
```

a. Write a program to check your answers.

b. Repeat parts a and b if $i = 5$, $j = 2$, and $y = 2.0$

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Postlab Questions

1. What was the most difficult part of this lab?
2. What changes would you need to make to your carpeting program if the length and width were input as meters instead of feet?
3. What changes would you need to make to your carpeting program if the length and width were expressed in feet and the unit cost was expressed as dollars per square yard?
4. In the program you wrote from Exercise 2, can you control the number of decimal places displayed for the decimal equivalent for a fraction like 2/3?
5. Modify the program you wrote for Exercise 2 so that your output resembles the example below.

$$\begin{array}{r} 3 \\ \text{-----} \\ 8 \end{array} = 0.375$$