

Homework

Variable Assignments & BEDMAS

1. Highlight the assignment statements that will cause errors. Explain what the problem is for each line that causes an error.

```
int a = 6;
int b = 3;
float c = 3.5f;
char e = 'd';
int f;

// consider each of the following lines individually; assume the
// initial values given above
a = 4;
// You cannot assign a double to an integer variable
a = 4.5;
// Being an int, b can't be the sum of ints and doubles
b = a + b;
// Decimals default to double, so a float can't be the sum of a
double and int
c = a + b;
e = e;
// Double quotes signify a string, not char
e = "h";
// You cannot assign a string to a char
e = "def";
b = 3 / 5;
// f was never initialized and thus cannot be used yet
b = f;
```

*Answers are given under the assumption that up to each line containing an error, the previous errors magically don't exist

2. Use BEDMAS to calculate the result of the following equations. After you are done, try putting each expression in a test program to confirm your answers.

Questions	Answer
a) $240 / 8$	30
b) $19 / 3$	6
c) $188 \% 9$	8
d) $9 \% 9$	0
e) $5 + 8.0 / 3.0$	7
f) $3 + (4 * (2 + 2)) \% 6$	7
g) $4 - 5 * 2 \% 4 / 1$	2
h) $4 / -9$	0
i) $3 \% 4$	3

3. **Average.java** Write a program that reads three double values and computes their average. (Don't worry about rounding at this point).

4. **Drop.java** The height of an object at any given time dropped from a starting height of 100 meters is given by the equation $h = 100 - 4.9t^2$ where t is the time in seconds. Write a program that prompts the user for a time less than 4.5 seconds and then displays the height of the object at that time.
5. **PizzaCost.java** The cost of making a pizza at a local shop is as follows:
- Labour cost is \$0.75 per pizza, regardless of size
 - Rent cost is \$1.00 per pizza, regardless of size
 - Materials is $\$0.05 \times \text{diameter} \times \text{diameter}$ (diameter is measured in inches)
- Write a program that prompts that user for the size of a pizza and then display the cost of making the pizza.
6. **Alive.java** Write a program that calculates the number of hours of your life that you have spent sleeping. Assume that you sleep 8 hours each night. To simplify the problem, assume that there are 30 days in each month and 365 days in each year. The program output should look similar to the example below, where underlined data represents information that was entered by the user:
- ```
Enter your birthdate:
Year: 1990
Month: 9
Day: 8
Enter today's date:
Year: 2006
Month: 2
Day: 12
You have been alive for 5634 days.
You have slept 45072 hours.
```
7. **Fastfood.java** A fast food restaurant charges \$1.69 for burgers, \$1.09 for fries, and \$0.99 for sodas.
- a) Write a program that prompts the employee for the number burgers, fries, and sodas and then displays the totals, the HST (13%), and the final cost. Do not worry about rounding your digits for now.
  - b) Modify the program to prompt the employee for the amount tendered and then display the change due.
8. **DigitSum.java** Write a program that asks the user for a three-digit number, finds the sum of the digits of the number, and then prints both the number and its digit sum.

Reference for questions 3, 7

Carter, John. An Introduction To Computer Science Using Java. Toronto: University of Toronto Press, 2003

Reference for questions 4, 5, 6, 7

Brown, Beth. A Guide to Programming in Java, 2<sup>nd</sup> Edition, for Java SE5 and Java SE6. Pennington: Lawrenceville Press