

Homework

Variable Assignments & BEDMAS

1. Highlight the assignment statements that will cause errors. Explain what the problem is for each statement 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;
a = 4.5; a is a integer, floating point values are not allowed
b = a + b;
c = a + b;
e = e;
e = "h";
e = "def"; e is a char value, cannot hold strings
b = 3 / 5;
b = f;
```

2. Use BEDMAS to calculate the result of the following equations. After you are done, try putting each statement 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) $5 + 8.0 / 3.0$	7.67
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:
- ```
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.
  - 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