**Prelab Exercises**

1. What is the difference between a variable and a constant?

2. Explain what each of the lines below does. Be sure to indicate how each is different from the others.

a. int x;

b. int x = 3;

c. x = 3;

3. The following program reads three integers and prints the average. Fill in the blanks so that it will work correctly.

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

// Average.java

//

// Read three integers from the user and print their average

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

import java.util.Scanner;

public class Average

{

public static void main(String[] args)

{

int val1, val2, val3;

double average;

Scanner scan = new Scanner(System.in) ;

// get three values from user

System.out.println("Please enter three integers and " +

"I will compute their average");

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//compute the average

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//print the average

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}

}

4. Given the declarations below, find the result of each expression.

int a = 3, b = 10, c = 7;

double w = 12.9, y = 3.2;

a. a + b \* c

b. a - b - c

c. a / b

d. b / a

e. a - b / c

f. w / y

g. y / w

h. a + w / b

i. a % b / y

j. b % a

k. w % y

5. Carefully study the following program and find and correct all of the syntax errors.

// File: Errors.java

// Purpose: A program with lots of syntax errors

// Correct all of the errors (STUDY the program carefully!!)

#import java.util.Scanner;

public class errors

{

public static void main (String[] args)

{

String Name; / Name of the user

int number;

int numSq;

Scanner scan = new Scanner(System.in);

System.out.print ("Enter your name, please: ")

Name = scan.nextInt();

System.out.print ("What is your favorite number?);

number = scan.nextInt();

numSq = number \* number;

System.out.println (Name ", the square of your number is "

numSquared);

}

6. Trace the execution of the following program assuming the input stream contains the numbers 10, 3, and 14.3. Use a table that shows the value of each variable at each step. Also show the output (exactly as it would be printed).

// FILE: Trace.java

// PURPOSE: An exercise in tracing a program and understanding

// assignment statements and expressions.

import java.util.Scanner;

public class Trace

{

public static void main (String[] args)

{

int one, two, three;

double what;

Scanner scan = new Scanner(System.in);

System.out.print ("Enter two integers: ");

one = scan.nextInt();

two = scan.nextInt();

System.out.print("Enter a floating point number: ");

what = scan.nextDouble();

three = 4 \* one + 5 \* two;

two = 2 \* one;

System.out.println ("one " + two + ":" + three);

one = 46 / 5 \* 2 + 19 % 4;

three = one + two;

what = (what + 2.5) / 2;

System.out.println (what + " is what!");

}

}