**Name** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Honors Computer Programming 1-2**

**Chapter 3 Exam Preparation**

1. What value is stored into the *int* variable **result** in each of the following?

A **result = 15 % 4;** value \_\_\_\_\_ B **result = 7 / 3 + 2;** value \_\_\_\_\_

C **result = 2 + 7 \* 5;** value \_\_\_\_\_ D **result = 45 / 8 \* 4 + 2;** value \_\_\_\_\_

E **result = 17 + (21 % 6) \* 2;** value \_\_\_\_\_ F **result = (int)(4.5 + 2.6 \* 0.5);** value \_\_\_\_\_

2. Translate the following Java code into algebraic notation:

A **dm = m \* Math.sqrt(1 + v / c) / (Math.sqrt(1 – v / c) – 1);**

B **volume = 4 \* Math.PI \* Math.pow(r, 3) / 3;**

3. Evaluate each of the following expressions which use some of the functions of the **Java Math** class.

A **Math.abs(–9.1)** \_\_\_\_\_\_ B **Math.sqrt(49.0)** \_\_\_\_\_\_\_\_

C **(int)Math.round(6.51)** \_\_\_\_\_\_ D **Math.pow(4, 2)** \_\_\_\_\_\_

4. Given the following code shown for class **Triangle** and class **TriangleTest**.

**public class TriangleTest**

**{**

**public static void main(String args[ ])**

**{**

**∙ ∙ ∙**

**final int NUM\_SIDES = 3;**

**System.out.println("A triangle has "**

**+ NUM\_SIDES + " sides.");**

**}**

**}**

A What will the output be?

B What is **NUM\_SIDES**

5. In the statement  **System.out.println( );**

**System** is a(n): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**out** is a(n): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**println** is a(n): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. Using the Java naming conventions, write an example of each of the following:

a class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

an object: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

a method: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. *True or False*: Java requires you to cast whenever

\_\_\_\_\_ you convert an **int** to a **double** \_\_\_\_\_ you convert one type to another

\_\_\_\_\_ you perform a conversion that loses information \_\_\_\_\_ you convert a **String** to an **int**

8. Given the following code segment, label each of the following as a valid **(V)** or an invalid **(IV)** assignment statement.

**int quantity = 3;**

**double value = 7.52;**

**String number = "one";**

\_\_\_\_\_ **quantity = value;**

\_\_\_\_\_ **quantity = int(value);**

\_\_\_\_\_ **value = quantity;**

\_\_\_\_\_ **quantity = (double)value;**

\_\_\_\_\_ **quantity = number;**

9. Write the Java code to prompt a user to type in his/her age, using **JOptionPane**. Assign the entered value to the **int** variable **age**.

**// JOptionPane input statement**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**// convert input to an int**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

10. Write the Java code to prompt a user to type in the name of his high school, using JOptionPane. Assign the entered value to the **String** variable **school**. Follow this code by a prompt for the school population. Store the school population into an **int** variable **population**.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ // prompt for the school name**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ // store input into a String variable**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ // prompt for school population**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ // store input into an int variable**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ // store input into an int variable**

11. Given the code segment shown, what will happen when you try to compile and execute this code? If you don't know, test the code.

**String input = "123.75";**

**int count = Integer.parseInt(input);**

**System.out.println(count);**

12. *Copy using primitives:* Given the code shown, what is the final value of **firstNum**?

**double firstNum = 10;**

**double secondNum = firstNum;**

**secondNum = secondNum + 30;**

13. Given  **String message = "Java Rules";**  write a Java statement to display the string in all lowercase letters

and one to display it in all uppercase letters.

lowercase:

uppercase:

14. Write a Java statement to declare an integer constant called **IQ** and set it to 100 in the following ways:

a) in the **main** method:

b) as a constant in a class that is only used by that class:

c) as a constant in a class used by other classes:

**declarations**

int a = 45;

int b = 63;

double c = 7.6463;

**output**

xx45xxxx63

x7.65

15. Given the declarations shown at the right. If the character **x** in the output indicates a space character, then

A What is the **printf** statement that will print the first line of output

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

B What is the **printf** statement that will print the second line of output?

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16. The declarations shown two strings of unknown length and two **ints** of unknown values.

**declarations**

String name1 = "...";

String name2 = "...";

int age1 = ...;

int age2 = ...;

A Declare a format string **str** that can be used to output a left-justified name with a field width of 10 characters followed by a right-justified **age** with a field width of 2 characters and a newline character.

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B What are the two **printf** statements that will print the name and age for each person using the format string defined in part A?

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