Name: _____

Date: _____ Per: ____
AP Computer Science, Mr. Ferraro

Practice Problems for APCS Quiz #4

1. Write a statement that converts "`double p = 73.389`" into an `int`.

2. The operation you performed in #1 is called a(n) _____.

3. Consider the statement "`final double METERS_PER_YARD = 39.37 / 36;`".

   (a) `METERS_PER_YARD` is a(n) _____.

   (b) The RHS of the statement evaluates to a(n) _____ because of *data type* _____.

   (c) Why are such statements used in programming? *Give the most important reason.*

4. For each, determine whether the *numeric*, or *literal*, *constant* is valid in Java (T or F).

   (a) ___ `25`

   (b) ___ `2.50`

   (c) ___ `-2.50`

   (d) ___ `5,023`

5. Operators:

   (a) List the *arithmetic* operators[1] recognized by Java: _____

   (b) List the *relational* operators recognized by Java: _____

   (c) List the *logical* operators recognized by Java: _____

[1] Don't forget *modulo*!

6. List *all* operators — arithmetic, relational, and logical — below, in a vertical fashion, so that the most important operator is at the top and the least important is at the bottom.

7. Consider the code below.

```
int a = 12, b = 4;
System.out.println(b % (a - 2) + a % (b + 3));
```

   What is printed on the screen?

8. List as many *primitive data types* from memory as you can. Then, do a quick Web search to fill in the missing data types.

9. Write an expression that sets "`k`" equal to a random integer between 1 and 8, inclusive.[2]

   `int k =` _____

10. For each given statement, write the value printed to the screen.

    (a) `System.out.println( "" + 2 + 7 );` _____

    (b) `System.out.println( 1 + "" + 9 );` _____

    (c) `System.out.println( -3 + 2 + "" + 5 );` _____

[2]For this problem, use `Math.random()`.

11. For each given expression, rewrite using as few pairs of parentheses as possible without changing the expression's value.

(a) `( 5*a*a ) - ( 3*a ) + ( 91/10.0 )`

(b) `( ( ( 2 * p ) + q ) / ( r + h ) )`

(c) `!( p || q )`

(d) `!( a >= 7 )`

(e) `!( ( k < 7 ) && ( k >= 1 ) )`

12. Rewrite the given code snippet using `if()-else if()-else`.

```
char answer;
String result;

//call method to get user's response
//set 'answer' accordingly...

switch (answer) {
    case 'a':
        result = answer + " is incorrect.";
        break;
    case 'b':
        result = answer + " is incorrect.";
        break;
    case 'c':
        result = answer + " is correct!";
        break;
    case 'd':
        result = answer + " is incorrect.";
        break;
    default:
        result = "INVALID CHOICE.";
        break;
}

  System.out.println(result);
```

13. Consider a rewrite of the code from #12, which introduces two bugs. What are they? **Be specific!**

```
char answer;

//call method to get user's response
//set 'answer' accordingly...

switch (answer) {
    case 'a':
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        break;
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        String result = answer + " is incorrect.";
        break;
    case 'c':
        String result = answer + " is correct!";
    case 'd':
        String result = answer + " is incorrect.";
        break;
    default:
        String result = "INVALID CHOICE.";
        break;
}

System.out.println(result);
```