**Homework #3**

**Read Textbook Chap.3.1 ~3.13 and answer the following questions:**

1. List six relational operators.

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1. What is wrong in the following code?

**if** radius >= 0

{

area = radius \* radius \* PI;

System.out.println("The area for the circle of " +

" radius " + radius + " is " + area);

}

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1. Write an if statement that increases pay by 3% if *score* is greater than 90, otherwise increases pay by 1%.

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1. What is the output of the code in (a) and (b) if number is 30? What if number is 35?

(a)

**if** (number % 2 == 0)

System.out.println(number + " is even.");

System.out.println(number + " is odd.");

(b)

**if** (number % 2 == 0)

System.out.println(number + " is even.");

**else**

System.out.println(number + " is odd.");

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1. Rewrite the following statement using a Boolean expression:

**if** (count % 10 == 0)

newLine = **true**;

**else**

newLine = **false**;

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1. Which of the following is a possible output from invoking Math.random()?

323.4, 0.5, 34, 1.0, 0.0, 0.234

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1. (a) How do you obtain the current second, minute, and hour? a. How do you generate a random integer i such that 0 <= i < 20 ?

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1. How do you generate a random integer i such that 10 <= i < 20

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1. How do you generate a random integer i such that 10 <= i <= 50

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1. Write an expression that returns 0 or 1 randomly.

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1. Assuming that x is 1, show the result of the following Boolean expressions.

(true) && (3 > 4) 🡺

!(x > 0) && (x > 0) 🡺

(x > 0) || (x < 0) 🡺

(x != 0) || (x == 0) 🡺

(x >= 0) || (x < 0) 🡺

(x != 1) == !(x == 1) 🡺

1. Write a Boolean expression
2. evaluates to true if age is greater than 13 and less than 18

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1. evaluates to true if weight is greater than 50 pounds or height is greater than 60 inches

🡺

1. evaluates to true if weight is greater than 50 pounds and height is greater than 60 inches

🡺

1. evaluates to true if either weight is greater than 50 pounds or height is greater than 60 inches, but not both

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1. What is x after the following if-else statement is executed? Use a switch statement to rewrite it.

**int** x = 1, a = 3;

**if** (a == 1)

x += 5;

**else** **if** (a == 2)

x += 10;

**else** **if** (a == 3)

x += 16;

**else** **if** (a == 4)

x += 34;