Chapter 3 WS

1. Which ***relational*** symbol do I use for the following scenarios?

|  |  |
| --- | --- |
| To find out if n1 is larger than n2 |  |
| To find out if n1 is the same as n2 |  |
| To find out if n1 is the same as or larger than n2 |  |
| To find out if n1 is smaller than n2 |  |
| To find out if n1 is smaller than or the same as n2 |  |
| To find out if n1 is not the same as n2 |  |

1. Which ***logical*** symbol do I use for the following scenarios?

|  |  |
| --- | --- |
| You want to do something if a and b are both true |  |
| You want to do something if either a or b is true, you don’t care if both are |  |
| You want to do something if a is false |  |
| You want to do something if a or b is true, but not both |  |

1. Evaluate the following, based on:

int x = 2;

int y = 3;

int z = 6;

1. (x < y && y < z)
2. (x < y || y < z)
3. !(x < y)
4. (x + y < z)
5. (x - y < z)
6. Evaluate the following based on:

int x =4;

int y = 5;

1. !(x == y)
2. x != y
3. x == y
4. x >= y
5. What are the results of the following?
   1. (8<6) && (2==3)
   2. (8<6) || (2==3)
   3. (8<6) ^ (2==3)
6. What is x after evaluating the following:

int x = 10;

int y = 10;

(y > 10) && (x-- > 10);

1. What will be evaluated first for the following Java statements?

true || true && true

true || !true && true

true && true ^ true

true == true != true

1. Will the result of 1.0 + 1.0 + 1.0 + 1.0 + 1.0 == 5.0 always evaluate to true?
2. If given int x = 3 and int y =9, what is the outcome of the following:
   1. x / y > 0
   2. y % x == 0
   3. x >= y
   4. y >= x
   5. y == x
3. If given int age = 79, what is the outcome of the following:
   1. age >= 65
   2. age >= 18
   3. age >= 21
   4. age >= 25
   5. age >= 16
4. If given double side = 5, what is the value for valid, each statement is independent:
   1. boolean valid = side >= 0;
   2. boolean valid = side > 0;
   3. boolean valid = side > -1;
5. If given int num = 7; what is the value for jackpot, each statement is independent:
   1. boolean jackpot = num == 9;
   2. boolean jackpot = num == 7;
   3. boolean jackpot = num == 1;
6. If given int score = 87, what is the value for passing, each statement is independent:
   1. boolean passing = score >= 60;
   2. boolean passing = score >= 90;
   3. boolean passing = score >= 70;
7. Declare a boolean variable doorClosed to false.
8. Declare a boolean variable isTeenager that evaluates true if age is greater than 13 and less than 18.
9. Declare a boolean variable carCanTurnOn if hasKey and brakeEngaged are true.
10. Declare a boolean variable, shortPerson, that compares Napoleon’s height, 68, to 67 (the average height during his time). If his height is less than the average, short is true, otherwise it is false.
11. Declare a boolean variable, correctWeight, that evaluates true if either weight is greater than 50 lbs and height is greater than 60 inches.
12. Declare a boolean variable, h\_w\_eight, that evaluates true if either weight is greater than 50 lbs or height is greater than 60 inches, but not both.
13. Assume x is 0. What is the output of the following statement?

if (x > 0)

System.out.print("x is greater than 0");

else if (x < 0)

System.out.print("x is less than 0");

else

System.out.print("x equals 0");

1. Correct the following statement:

If i > 0 {

System.out.print(“i is positive.”);

}

1. Fix the following code:

double change;

if change >= 0

System.out.print(“No change.”);

else change >= 50;

System.out.print(“50% increase);

if change >= 80

System.out.print(“80% increase”);

1. Pick the better Java statement for the following:

boolean test = true;

if (test == true)

System.out.println("I'll always print out.");

if (test)

System.out.println("I'll always print out.");

1. Fix the following if statements so each is coherent, and easy to read.

if (danger == true){

System.out.println(“Run!”);

if( danger == false){

System.out.println(“Relax”);

if(illegalMove == true){

System.out.println(“Go for it!”);

if (SchoolIn != false){

System.out.println(“Drive normal speed”);

1. Given the code below, does that mean it must be dark?

boolean lightsOn = true;

if (lightsOn){

System.out.println(“It must be dark”);

}

1. Something to think about:

boolean raining = true;

boolean cold = true;

if (raining && cold){

System.out.println(“I need an umbrella and a jacket”);

else{

System.out.println(“I don’t need an umbrella, nor a jacket – but wait is that true? What if is raining but not cold, or cold but not raining?”);

1. Declare a double variable, timeOfDay. If timeOfDay is less than 10, print out “Good Morning!” If the timeOfDay is greater than 18, print out “Good Evening!”
2. Write the Java statements that will test if num is even or odd.
3. What is the output for the following:

int score = 88;

if (score >= 60)

System.out.println(“D”);

else if (score >= 70)

System.out.println(“C”);

else if (score >= 80)

System.out.println(“B”);

else if (score >= 90)

System.out.println(“A”);

else

System.out.println(“F”);

1. Rewrite the following statements using a Boolean expression:

boolean newLine;

if(count % 10 == 0)

newLine = true;

else

newLine = false;

1. Rewrite the following to a Java test statement (that could be used for an if statement or Boolean expression):

1 <= numberOfDaysInAMonth <= 31

1. What is the output for the following?

int x = 0;

if (x > 0);

{

System.out.println("x");

}

1. What is the output?

int q = 0;

if (q > 0);

{

System.out.println("x");

}

1. Which of the following code displays the area of a circle if the radius is positive.

a. if (radius <= 0)

System.out.println(radius \* radius \* 3.14159);

b. if (radius != 0)

System.out.println(radius \* radius \* 3.14159);

c. if (radius >= 0)

System.out.println(radius \* radius \* 3.14159);

d. if (radius > 0)

System.out.println(radius \* radius \* 3.14159);

1. What is the output for the following code?

int temp = 78;

if (temperature <= 100)  
   System.out.println("too hot");  
else if (temperature <= 40)  
   System.out.println("too cold");  
else  
   System.out.println("just right");

1. What is the output for the following? If it is not correct, fix it!

int score = 88;

if (score >= 60)

System.out.println(“D”);

else if (score >= 70)

System.out.println(“C”);

else if (score >= 80)

System.out.println(“B”);

else if (score >= 90)

System.out.println(“A”);

else

System.out.println(“F”);

1. Write an if statement that increases pay by 3% if score is greater than 90, otherwise increase pay by 1%.
2. Generating random numbers with the Math.random() method that are between:
   1. 1 and 5, inclusive
   2. 1 and 10, inclusive
   3. 100 and 199, inclusive
   4. 20 and 80, inclusive
3. What is the output of the following switch statement?

char ch = 'a';

switch (ch) {

case 'a':

case 'A':

System.out.print(ch); break;

case 'b':

case 'B':

System.out.print(ch); break;

case 'c':

case 'C':

System.out.print(ch); break;

case 'd':

case 'D':

System.out.print(ch); }