# Chapter 3 Selections

1. <, <=, ==, !=, >, >=

2.

true

false

true

true

false

3. No. Boolean values cannot be cast to other types.

4.

if (y > 0)

x = 1;

5.

if (score > 90)

pay \*= 1.03;

6.

if (score > 90)

pay \*= 1.03;

else

pay \*= 1.01;

7.

If number is 30,

(a) displays

30 is even

30 is odd

(b) displays

30 is even

If number is 35,

(a) displays

35 is odd

(b) displays

35 is odd

8. Note: else matches the first if clause. No output if x = 3 and y = 2. Output is “z is 7” if if x = 3 and y = 4. Output is “x is 2” if if x = 2 and y = 2.



9. No output if x = 2 and y = 3. Output is “x is 3” if x = 3 and y = 2. Output is “z is 6” if x = 3 and y = 3.

10. Consider score 90, what will be the grade?

11. a, c, and d are the same. (B) and (C) are correctly indented.

12.

newLine = (count % 10 == 0);

13.

Both are correct. (b) is better.

1. for (a) if number is 14, the output is

14 is even

if number is 15, the output is

15 is multiple of 5

if number is 30, the output is

30 is even

30 is multiple of 5

for (b) if number is 14, the output is

14 is even

if number is 15, the output is

15 is multiple of 5

if number is 30, the output is

30 is even

15. 0.5, 0.0, 0.234

16. (a) (int)(Math.random() \* 20)

(b) 10 + (int)(Math.random() \* 10)

(c) 10 + (int)(Math.random() \* 41)

(d) (int)(Math.random() \* 2)

17. Yes

18. (true) && (3 > 4)

false

!(x > 0) && (x > 0)

false

(x > 0) || (x < 0)

true

(x != 0) || (x == 0)

true

(x >= 0) || (x < 0)

true

(x != 1) == !(x == 1)

true

19. (a) (x > 1) && (x < 100) (b) (num > 1) && (num < 100) || num < 0

20. (a) (x – 5> < 4.5 && (x – 5) > -4.5 (b) (x – 5> > 4.5 && (x – 5) < -4.5

21. x > y > 0

incorrect

x = y && y

incorrect

x /= y

correct

x or y

incorrect

x and y

incorrect

22.

Yes

23.

If x is 45, the expression is false.

If x is 67, the expression is true.

If x is 101, the expression is false.

24.

(x < y && y < z) is true

(x < y || y < z) is true

!(x < y) is false

(x + y < z) is true

(x + y < z) is true

25. age > 13 && age < 18

26.

weight > 50 || height > 60.

27.

weight > 50 && height > 60.

28.

weight > 50 ^ height > 60.

29. Switch variables must be of char, byte, short, or int data types. If a break statement is not used, the next case statement is performed. You can always convert a switch statement to an equivalent if statement, but not an if statement to a switch statement. The use of the switch statement can improve readability of the program in some cases. The compiled code for the switch statement is also more efficient than its corresponding if statement.

30. y is 2.

1. x is 17

switch (a) {

case 1: x += 5; break;

case 2: x += 10; break;

case 3: x += 16; break;

case 4: x += 34;

}



32. switch (day) {

case 0: System.out.println("Sunday”); break;

case 1: System.out.println("Monday”); break;

case 2: System.out.println("Tuesday”); break;

case 3: System.out.println("Wednesday”); break;

case 4: System.out.println("Thurday”); break;

case 5: System.out.println("Friday”); break;

case 6: System.out.println("Saturday”); break;

}

33. Sorted

34.

(A) ticketPrice = (ages >= 16) ? 20 : 10;

(B) System.out.print((count % 10 == 0) ? count + "\n" : count + " ");

35.

(A)

if (x > 10)

score = 3 \* scale;

else

score = 4 \* scale;

(B)

if (income > 10000)

tax = income \* 0.2;

else

tax = income \* 0.17 + 1000;

(C)

if (number % 3 == 0)

System.out.println(i);

else

System.out.println(j);

36. (int)(Math.random() \* 2) == 0 ? -1 : 1.

37. The precedence order for boolean operators is ^, &&, and ||

true || true && false is true

true && true || false is true

38. True

1. both are false
2. Yes. Yes. Yes.