

## Starting Out with Java: From Control Structures through Objects 7e (Gaddis) Chapter 3 Decision Structures

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### TRUE/FALSE

1. Programs never need more than one path of execution.

ANS: F

2. The `if-else` statement will execute one group of statements if its boolean expression is true or another group if its boolean expression is false.

ANS: T

3. In a `switch` statement, if two different values for the `CaseExpression` would result in the same code being executed, you must have two copies of the code, one after each `CaseExpression`.

ANS: F

4. All it takes for an `OR` expression to be true is for one of the subexpressions to be true.

ANS: T

5. All it takes for an `AND` expression to be true is for one of the subexpressions to be true.

ANS: F

6. When two strings are compared using the `String` class's `compareTo` method, the comparison is not case sensitive.

ANS: F

7. When testing for character values, the `switch` statement does not test for the case of the character.

ANS: F

8. If the expression on the left side of the `&&` operator is false, the expression on the right side will not be checked.

ANS: T

9. Unicode is an international encoding system that is extensive enough to represent all the characters of all the world's alphabets.

ANS: T

10. A local variable's scope always ends at the closing brace of the block of code in which it is declared.

ANS: T

11. When testing for character values, the `switch` statement does not test for the case of the character.

ANS: F

12. In a `switch` statement, each of the `case` values must be unique.

ANS: T

13. The `String.format` method works exactly like the `System.out.printf` method, except that it does not display the formatted string on the screen.

ANS: T

14. The `System.out.printf` method formats a string and displays it in the console window.

ANS: T

## MULTIPLE CHOICE

1. In an `if-else` statement, if the `boolean` expression is `false` then
- no statements or blocks are executed
  - the statement or block following the **`else`** is executed
  - the first statement or block is executed
  - all the statements or blocks are executed

ANS: B

2. The `switch` statement is a
- multiple alternative decision structure
  - nested decision structure
  - sequence structure
  - test expression

ANS: A

3. \_\_\_\_\_ operators are used to determine whether a specific relationship exists between two values.
- |               |               |
|---------------|---------------|
| a. Assignment | c. Logical    |
| b. Arithmetic | d. Relational |

ANS: D

4. If `str1` and `str2` are both `String` objects, which of the following expressions will correctly determine whether or not they are equal?
- |                                      |                                   |
|--------------------------------------|-----------------------------------|
| a. <code>str1 = str2</code>          | c. <code>str1.equals(str2)</code> |
| b. <code>str1 &amp;&amp; str2</code> | d. <code>str1 += str2</code>      |

ANS: C

5. Which of the following expressions could be used to perform a case-insensitive comparison of two String objects named `str1` and `str2`?
- a. `str1.equalsIgnoreCase(str2)`
  - b. `str1.equalsInsensitive(str2)`
  - c. `str1 != str2`
  - d. `str1 || str2`

ANS: A

6. A block of code is enclosed in a set of
- a. braces, { }
  - b. parentheses, ( )
  - c. brackets, [ ]
  - d. double quotes, " "

ANS: A

7. The boolean expression in an if statement must evaluate to
- a. degrees or radians
  - b. true or false
  - c. positive or negative
  - d. left or right

ANS: B

8. A flag may have the values
- a. defined or undefined
  - b. true or false
  - c. of any range of integers
  - d. of any Unicode character

ANS: B

9. What will be the values of `ans`, `x`, and `y` after the following statements are executed?

```
int ans = 35, x = 50, y = 50;
if (x >= y)
{
    ans = x + 10;
    x -= y;
}
else
{
    ans = y + 10;
    y += x;
}
```

- a. `ans = 60, x = 0, y = 50`
- b. `ans = 45, x = 50, y = 0`
- c. `ans = 45, x = 50, y = 50`
- d. `ans = 60, x = 50, y = 100`

ANS: A

10. What will be the value of `x` after the following statements are executed?

```
int x = 75;
int y = 60;
if (x > y)
```





```
if (x >= y)
{
    int ans = x + y;
}
System.out.println(ans);
```

- a. 10
- b. 120
- c. 100
- d. The code contains an error and will not compile.

ANS: B

18. What will be displayed after the following statements are executed?

```
int y = 10;
if (y == 10)
{
    int x = 30;
    x += y;
    System.out.println(x);
}
```

- a. 40
- b. 30
- c. 20
- d. The code contains an error and will not compile.

ANS: A

19. What will be the value of `pay` after the following statements are executed?

```
int hours = 45;
double pay, payRate = 10.00;
pay = hours <= 40 ? hours * payRate :
    40 * payRate + (hours - 40) * payRate * 1.5;
```

- a. 400.00
- b. 450.00
- c. 465.00
- d. 475.00

ANS: D

20. Which of the following expressions determines whether the `char` variable, `chrA`, is not equal to the letter 'A'?

- a. `chrA == 'A'`
- b. `chrA != 'A'`
- c. `chrA || 'A'`
- d. `chrA.notEquals(A)`

ANS: B

21. A \_\_\_\_\_ is a boolean variable that signals when some condition exists in the program.

- a. sentinel
- b. flag
- c. block
- d. case

ANS: B

22. The \_\_\_\_\_ statement is used to create a decision structure which allows a program to have more than one path of execution.

- a. block
- b. `if`
- c. null
- d. flag

ANS: B

23. In Java, when a character is stored in memory, it is actually the \_\_\_\_\_ that is stored.
- a. Unicode number
  - b. ASCII code
  - c. floating-point value
  - d. letter, symbol, or number

ANS: A

24. Java requires that the `boolean` expression being tested by an `if` statement be enclosed in
- a. a set of parentheses
  - b. a set of braces
  - c. a set of double quotes
  - d. a set of brackets

ANS: A

25. Which of the following statements determines whether the variable `temp` is within the range of 0 through 100 (inclusive)?
- a. `if (temp >= 0 && temp <= 100)`
  - b. `if (temp > 0 && temp < 100)`
  - c. `if (temp >= 0 || temp <= 100)`
  - d. `if (temp > 0 || temp < 100)`

ANS: A

26. Which of the following expressions will determine whether `x` is less than or equal to `y`?
- a. `x <= y`
  - b. `x => y`
  - c. `x >= y`
  - d. `x =< y`

ANS: A

27. Which of the following is the not equal operator?
- a. `<>`
  - b. `NOT`
  - c. `*&`
  - d. `!=`

ANS: D

28. If you prematurely terminate an `if` statement with a semicolon, the compiler will
- a. not display an error message
  - b. assume you are placing a null statement there
  - c. both (a) and (b)
  - d. none of these

ANS: C

29. What would be the value of `bonus` after the following statements are executed?

```
int bonus, sales = 1250;
if (sales > 1000)
    bonus = 100;
if (sales > 750)
    bonus = 50;
if (sales > 500)
    bonus = 25;
else
    bonus = 0;
```

- a. 100                      b. 500                      c. 25                      d. 0

ANS: C

30. What would be the value of `bonus` after the following statements are executed?

```
int bonus, sales = 85000;
char dept = 'S';
if (sales > 100000)
    if (dept == 'R')
        bonus = 2000;
    else
        bonus = 1500;
else if (sales > 75000)
    if (dept == 'R')
        bonus = 1250;
    else
        bonus = 1000;
else
    bonus = 0;
```

- a. 2000                      b. 1500                      c. 1250                      d. 1000

ANS: D

31. Which of the following is the correct boolean expression to test for: `int x` being a value between, but not including, 500 and 650, or `int y` not equal to 1000?

- a. `((x >= 500 && x <= 650) && (y != 1000))`  
b. `((x > 500 AND x < 650) OR !(y.equal(1000)))`  
c. `((x > 500 && x < 650) || (y != 1000))`  
d. `((x < 500 && x > 650) || !(y == 1000))`

ANS: C

32. Which of the following is the correct boolean expression to test for: `int x` being a value less than or equal to 500 or greater than 650, or `int y` not equal to 1000?

- a. `((x >= 500 && x < 650) && (y != 1000))`  
b. `((x <= 500 OR x > 650) AND !(y.equal(1000)))`  
c. `((x >= 500 || x < 650) || (y != 1000))`  
d. `((x <= 500 || x > 650) && !(y == 1000))`

ANS: D

33. \_\_\_\_\_ works like this: If the expression on the left side of the `&&` operator is `false`, the expression the right side will not be checked.

- a. short-circuit evaluation                      c. Boolean logic  
b. reverse logic                                      d. relational evaluation

ANS: A



34. What will be printed when the following code is executed?

```
double x = 45678.259;
System.out.printf("%.2f", x);
```

- a. 45678.259
- b. 0,045,678.26
- c. 45,678.26
- d. 45,678.3

ANS: C

35. Which of the following will format 12.78 to display as 12.8%?

- a. `System.out.printf("%2.1d%", 12.78);`
- b. `System.out.printf("%.2f%%", 12.78);`
- c. `System.out.printf("%1.2d%", 12.78);`
- d. `System.out.printf("%.1f%%", 12.78);`

ANS: D

36. An expression tested by an `if` statement must evaluate to

- a. 0 or 1
- b. +1 or -1
- c. true or false
- d. t or f

ANS: C

37. What is the value of `x` after the following code has been executed?

```
int x = 75;
int y = 90;
if (x != y)
    x += y;
```

- a. 75
- b. 90
- c. 15
- d. 165

ANS: D

38. What is the value of `ans` after the following code has been executed?

```
int x = 35;
int y = 20, ans = 80;
if (x < y)
    ans += y;
```

- a. 80
- b. 100
- c. 35
- d. 55

ANS: A

39. What is the value of `charges` after the following code has been executed?

```
double charges, rate = 7.00;
int time = 180;
charges = time <= 119 ? rate * 2 :
    time / 60.0 * rate;
```

- a. 7.00
- b. 14.00
- c. 21.00
- d. 28.00

ANS: C

40. What would be the value of `discountRate` after the following statements are executed?

```
double discountRate = 0.0;
int purchase = 1250;
if (purchase > 1000)
    discountRate = .05;
if (purchase > 750)
    discountRate = .03;
if (purchase > 500)
    discountRate = .01;
else
    discountRate = 0;
```

- a. .05                      b. .03                      c. .01                      d. 0

ANS: C

41. What does the following code display?

```
int d = 9, e = 12;
System.out.printf("%d %d\n", d, e);
```

- a. %d %d                      b. 9 12                      c. %d 9                      d. %9 %12

ANS: B

42. What does the following code display?

```
double x = 12.3798146;
System.out.printf("%.2f\n", x);
```

- a. 123798146                      c. %12.38  
b. 1238                              d. 12.38

ANS: D

43. What is the value of `ans`, `x`, and `y` after the following statements are executed?

```
int ans = 0, x = 15, y = 25;
if ( x >= y)
{
    ans = x + 10;
    x -=y;
}
else
{
    ans = y + 10;
    y += x;
}
```

- a. `ans = 0, x = 15, y = 25`  
b. `ans = 25, x = -10, y = 25`  
c. `ans = 35, x = 15, y = 40`  
d. `ans = 25, x = 15, y = 40`

ANS: C

44. Which of the following will format 12.7801 to display as \$12.78?
- a. `System.out.printf("$%,.2f", 12.7801);`
  - b. `System.out.printf("%f", 12.7801);`
  - c. `System.out.printf("%.2f$$", 12.7801);`
  - d. `System.out.printf("$d", 12.7801);`

ANS: A