The **NOT operator** (!) negates the result of any Boolean expression.

A **range check** is a series of `if` statements that determine whether a value falls within a specified range.

At runtime is a phrase that means *during the time a program is running*.

Review Questions

1. What is the output of the following code segment?

```
int a = 3, b = 4;
if(a == b)
   Write("X");
   WriteLine("Y");
```

a. X c. XY

b. *Y d. nothing*

2. What is the output of the following code segment?

```
int a = 3, b = 4;
if(a < b)
{
   Write("Y");
   WriteLine("Z");
}
```

a. Y *c. YZ*

b. Z d. nothing

3. What is the output of the following code segment?

```
int a = 3, b = 4;
if(a > b)
   Write("Up");
else
WriteLine("Down");
```

a. Up *c. UpDown*

b. Down d. nothing

4. If the following code segment compiles correctly, what do you know about the variable x?

```
if(x) WriteLine("OK");
```

a. x is an integer variable.

b. *x is a Boolean variable*

c. x is greater than 0.

d. none of these

5. What is the output of the following code segment?

```
int c = 6, d = 12;
if(c > d);
   Write("Green");
WriteLine("Yellow");
```

a. Green

b. Yellow

c. GreenYellow

d. nothing

6. What is the output of the following code segment?

```
int c = 6, d =
12; if(c < d)
if(c > 8)
      Write("Blue");
else
      Write("Red");
else
Write("Green");
```

a. Blue

b. *Red*

c. Green

d. nothing

7. What is the output of the following code segment?

```
int e = 5, f = 10;
if(e < f && f < 0)
Write("Red"); else
Write("Orange")
```

A.-Red

B.-Orange

C.- RedOrange

D.- nothing

ved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-

8. What is the output of the following code segment?

```
int e = 5, f = 10;
if(e < f || f < 0)
WRITE PURPLE
else
Write("Gold");
```

A.-PURPLE

B.-GOLD

C.-PURPLEGOLD

D.-NOTHING

9. Which of the following expressions is equivalent to the following code segment?

```
if(g > h)    if(g <
k)
Write("Brown");
```

a. *if(g > h && g < k) Write("Brown");*

b. `if(g > h && < k) Write("Brown");`

c. `if(g > h || g < k) Write("Brown");`

d. two of these

10. Which of the following expressions assigns `true` to a Boolean variable named `isIDValid` when `idNumber` is both greater than 1000 and less than or equal to 9999, or else is equal to 123456?

a.
```
isIDValid = (idNumber > 1000 && idNumber <= 9999 &&
idNumber == 123456)
```

b.
```
isIDValid = (idNumber > 1000 && idNumber <= 9999 ||
idNumber == 123456)
```

c.
```
isIDValid = ((idNumber > 1000 && idNumber <= 9999) ||
idNumber == 123456)
```

d. *two of these*

11. Which of the following expressions is equivalent to `a || b && c || d`?

    a. `a && b || c && d` c. ***`a || (b && c) || d`***

    b. `(a || b) && (c || d)` d. two of these

12. How many `case` labels would a `switch` statement require to be equivalent to the following `if` statement?

```
if(v == 1)
   WriteLine("one");
else
WriteLine("two");
```

    a. zero c. two

    b. ***one*** d. impossible to tell

13. In C#, falling through a `switch case` is most often prevented by using the _____ statement.

    a. ***break*** c. case

    b. `default` d. end

14. If the test expression in a `switch` does not match any of the `case` values, and there is no `default` value, then _____.

    a. a compiler error occurs

    b. a runtime error occurs

    c. ***the program continues with the next executable statement***

    d. the expression is incremented and the `case` values are tested again

15. Which of the following is equivalent to the following statement?

```
if(m ==
0)    d =
0; else
d = 1;
```

    a. `d = (m == 0) : d = 0, d = 1;`

    b. `m ? (d = 0); (d = 1);`

    c. `m == 0; d = 0; d = 1?`

    d. ***`d = (m == 0) ? 0 : 1;`***

16. Which of the following C# expressions is equivalent to `a < b && b < c`?

    a. `c > b > a` ***c. `!(b <= a) && b < c`***

    b. `a < b && c >= b` d. two of these

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-202

17. Which of the following C# expressions means, "If `itemNumber` is not 8 or 9, add TAX to `price`"?

a. `if(itemNumber != 8 || itemNumber != 9) price = price + TAX;`

b. ***`if(itemNumber != 8 && itemNumber != 9) price = price + TAX;`***

c.
```
if(itemNumber != 8 && != 9)
    price = price + TAX;
```

d. two of these

18. Which of the following C# expressions means, "If `itemNumber` is 1 or 2 and RVBOUJUZ is 12 or more, add TAX to price"?

a. `JG JUFN/VNCFS]]JUFN/VNCFSRVBOUJUZ price = price + TAX;`

b. `JG JUFN/VNCFS]]JUFN/VNCFS]]RVBOUJUZ price = price + TAX;`

c. `JG JUFN/VNCFSJUFN/VNCFSRVBOUJUZ price = price + TAX;`

d. ***none of these***

19. Which of the following C# expressions means, "If `itemNumber` is 5 and zone is 1 or 3, add TAX to price"?

a.
```
if(itemNumber == 5 && zone == 1 || zone == 3)
price = price + TAX;
```

b.
```
if(itemNumber == 5 && (zone == 1 || zone == 3))
price = price + TAX;
```

c.
```
if(itemNumber == 5 && (zone ==1 || 3)) price =
price + TAX;
```

d. ***two of these***

20. Which of the following C# expressions results in TAX being added to price if the integer `itemNumber` is not 100? a. `if(itemNumber != 100) price = price + TAX;`

b.
```
if(!(itemNumber == 100)) price = price +
TAX;
```

c. `if(itemNumber <100 || itemNumber > 100)`
   `price = price + TAX;`

d. ***all of these***

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-202