**Chapter 4: How to work with numeric and string data**

**Murach's C#**

**MULTIPLE CHOICE**

1. Which built-in data type is the most precise type for storing monetary values?

| a. | double | c. | decimal |
| --- | --- | --- | --- |
| b. | single | d. | money |

2. The bool data type stores a

| a. | true or false value | c. | date/time value |
| --- | --- | --- | --- |
| b. | character value | d. | null value |

3. Which built-in data type stores only whole numbers?

| a. | whole | c. | number |
| --- | --- | --- | --- |
| b. | float | d. | int |

4. A constant stores data

| a. | that changes as a program executes |
| --- | --- |
| b. | that does not change as a program executes |
| c. | that does not need to be initialized |
| d. | that is a reference type |

5. Which of the following is a valid decimal literal?

| a. | **30.0** |
| --- | --- |
| b. | **30.0c** |
| c. | **30.0d** |
| d. | **30.0m** |

6. Variables named according to camel notation

| a. | capitalize the first letter of every word after the first word |
| --- | --- |
| b. | use all lowercase letters |
| c. | capitalize the first letter of every word including the first word |
| d. | capitalize only the first letter of the variable name |

7. Variables named according to Pascal notation

| a. | capitalize the first letter of every word after the first word |
| --- | --- |
| b. | use all lowercase letters |
| c. | capitalize the first letter of every word including the first word |
| d. | capitalize only the first letter of the variable name |

**Code Example 4-1**

**decimal a = 2.5m;**

**decimal b = 4.0m;**

**decimal c = 12.7m;**

**int i = 4;**

**int j = 8;**

**int k = 17;**

8. (Refer to Code Example 4-1.) What is the value of x after the following statement is executed?

**int x = i + j;**

| a. | 4 | c. | 12 |
| --- | --- | --- | --- |
| b. | 8 | d. | 32 |

9. (Refer to Code Example 4-1.) What is the value of x after the following statement is executed?

**int x = j / i;**

| a. | 0 | c. | 2 |
| --- | --- | --- | --- |
| b. | 0.5 | d. | 4 |

10. (Refer to Code Example 4-1.) What is the value of x after the following statement is executed?

**int x = i / j;**

| a. | 0 | c. | 2 |
| --- | --- | --- | --- |
| b. | 0.5 | d. | 4 |

11. (Refer to Code Example 4-1.) What is the value of x after the following statement is executed?

**int x = k % j;**

| a. | 1 | c. | 3 |
| --- | --- | --- | --- |
| b. | 2 | d. | 4 |

12. (Refer to Code Example 4-1.) What is the value of x after the following statement is executed?

**decimal x = a + b;**

| a. | 2.5 | c. | 6.5 |
| --- | --- | --- | --- |
| b. | 6 | d. | 10.0 |

13. (Refer to Code Example 4-1.) What is the value of x after the following statements are executed?

**int x = 27;**

**x -= i;**

| a. | 4 | c. | 27 |
| --- | --- | --- | --- |
| b. | 23 | d. | 31 |

**Code Example 4-1**

**decimal a = 2.5m;**

**decimal b = 4.0m;**

**decimal c = 12.7m;**

**int i = 4;**

**int j = 8;**

**int k = 17;**

14. (Refer to Code Example 4-1.) What is the value of x after the following statement is executed?

**int x = k / (j - i);**

| a. | 2 | c. | 4.25 |
| --- | --- | --- | --- |
| b. | 4 | d. | 8 |

15. (Refer to Code Example 4-1.) What is the value of x after the following statement is executed?

**decimal x = i / j;**

| a. | 0.0 | c. | 0.5 |
| --- | --- | --- | --- |
| b. | 1.0 | d. | 2.0 |

16. (Refer to Code Example 4-1.) What is the value of x after the following statement is executed?

**decimal x = (decimal)i / (decimal)j;**

| a. | 0.0 | c. | 0.5 |
| --- | --- | --- | --- |
| b. | 1.0 | d. | 2.0 |

17. (Refer to code example 4-1.) What is the value of x after the following statement is executed?

**decimal x = Math.Round(c)**

| a. | 0 | c. | 12.7 |
| --- | --- | --- | --- |
| b. | 12 | d. | 13 |

18. (Refer to code example 4-1.) What is the value of x after the following statement is executed?

**int x = Math.pow(i, 2);**

| a. | 0 | c. | 4 |
| --- | --- | --- | --- |
| b. | 2 | d. | 16 |

19. Given double variables a and b that contain the lengths of the two short sides of a right triangle, which of the following statements uses the methods of the Math class to calculate the length of the third side and save it in a double variable named c?

The formula for calculating the length of the third side is:



| a. | **double c = Math.Sqrt(a%2 + b%2));** |
| --- | --- |
| b. | **double c = Math.Sqrt(Math.Pow(a, 2) + Math.Pow(b, 2));** |
| c. | **double c = Math.Sqrt(Math.Max(a, 2) + Math.Max(b, 2));** |
| d. | **double c = Math.Pow(Math.Sqrt(a) + Math.Sqrt(b), 2);** |

20. What is the value of n once the following statement is executed?

**decimal n = Math.Round(23.75, 1);**

| a. | 23 |
| --- | --- |
| b. | 23.7 |
| c. | 23.8 |
| d. | 24 |

21. Given the following Random object named number, which of the following choices gets a random integer from 1 to 10 (including both 1 and 10)?

**Random number = new Random();**

| a. | **int i = number.Next(10);** |
| --- | --- |
| b. | **int i = number.Next(11);** |
| c. | **int i = number.Next(1,10);** |
| d. | **int i = number.Next(1,11);** |

22. Given the following Random object named number, which of the following statements returns a double value that is greater than or equal to 0.0 and less than 1.0?

**Random number = new Random();**

| a. | **double d = number.NextDouble();** |
| --- | --- |
| b. | **double d = number.NextDouble(1.0);** |
| c. | **double d = number.Generate();** |
| d. | **double d = number.Generate(1.0);** |

23. Which statement is equivalent to the following statement?

**total = total + tax;**

| a. | **total = tax++;** |
| --- | --- |
| b. | **total += tax;** |
| c. | **total = ++tax;** |
| d. | **total =+ tax;** |

24. To override the order of precedence in an arithmetic expression, you can use

| a. | exclamation points | c. | brackets |
| --- | --- | --- | --- |
| b. | parentheses | d. | braces |

25. How could you rewrite the following sequence of statements as a single statement, assuming the temp1 variable is not required after these statements are executed?

**decimal temp1 = 1.0 - discountPct;**

**total = total \* temp1;**

| a. | **total = total \* 1.0 - discountPct;** |
| --- | --- |
| b. | **total = total \* (1.0 - discountPct);** |
| c. | **total = 1.0 - discountPct \* total;** |
| d. | **total = 1.0 - (discountPct \* total);** |

26. To assign a more precise numeric data type to a less precise numeric data type, you can code

| a. | an explicit cast | c. | a widening conversion |
| --- | --- | --- | --- |
| b. | an implicit cast | d. | an assignment operator |

27. To concatenate two or more strings into one, you use this character:

| a. | # | c. | & |
| --- | --- | --- | --- |
| b. | | | d. | + |

28. What is the value of the cityState string after these statements are executed?

**cityState = "Milwaukee";**

**cityState += "," + "Wisconsin";**

| a. | **Milwaukee, Wisconsin** | c. | **MilwaukeeWisconsin** |
| --- | --- | --- | --- |
| b. | **Milwaukee,Wisconsin** | d. | **Wisconsin** |

29. What is the value of the cityState string after these statements are executed?

**cityState = "Milwaukee";**

**cityState += ",";**

**cityState = "Wisconsin";**

| a. | **Milwaukee, Wisconsin** | c. | **MilwaukeeWisconsin** |
| --- | --- | --- | --- |
| b. | **Milwaukee,Wisconsin** | d. | **Wisconsin** |

30. Which of the following statements results in a string that looks like this when displayed?

**c:\murach\files**

| a. | **string s = "c:\murach\files";** |
| --- | --- |
| b. | **string s = "c:\\murach\\files";** |
| c. | **string s = "c:\\murach\\files\";** |
| d. | **string s = "c:\murach\files\";** |

31. Which of the following statements results in a string that appears like this when displayed?

**c:\murach\files**

| a. | **String s = @"c:\murach\files";** |
| --- | --- |
| b. | **String s = "@c:\murach\files";** |
| c. | **String s = @c:\murach\files@;** |
| d. | **String s = "@c:\murach\files@";** |

32. A reference type stores

| a. | a data value | c. | a reference to an enumeration |
| --- | --- | --- | --- |
| b. | a reference to an object | d. | a reference to a class |

33. Assuming that a variable named sales contains a string that represents a valid decimal number, which of the following statements is valid code for converting the sales string to a decimal value?

| a. | **decimal d = Parse.Decimal(sales);** |
| --- | --- |
| b. | **decimal d = Decimal.Parse(sales);** |
| c. | **decimal d = sales;** |
| d. | **decimal d = Convert.Decimal(sales);** |

34. Assuming that total is a decimal variable, which of the following statements does *not* convert it to a string?

| a. | **string s = "Total: " + total;** |
| --- | --- |
| b. | **string s = String.Parse(total);** |
| c. | **string s = total.ToString();** |
| d. | **string s = Convert.ToString(total);** |

35. If a decimal variable named total has a value of 1234.56, what string will result from the following statement?

**string s = total.ToString("c2")**

| a. | **$1,234.56** | c. | **1234.56** |
| --- | --- | --- | --- |
| b. | **1,234.56** | d. | **1235** |

36. If you declare a variable within a method, the variable will be available

| a. | only within that method | c. | from any class in the project |
| --- | --- | --- | --- |
| b. | from any method of the class | d. | from any method with the same scope |

37. Which of the following statements is *not* true about the following code?

**decimal total = 0.0m;**

**private void btnCalculate\_Click(object sender, EventArgs e)**

**{**

**int calculateCount = 0;**

**// the rest of the code for this method is omitted**

**}**

| a. | The variable named total has class scope. |
| --- | --- |
| b. | The variable named calculateCount has class scope. |
| c. | The variable named total is accessible in the btnCalculate\_Click() method. |
| d. | The variable named calculateCount is accessible in the btnCalculate\_Click() method. |

38. Given the following enumeration, which valid statement assigns the enumeration’s first value to the variable named terms?

**enum Terms**

**{**

**Net30Days,**

**Net60Days,**

**Net90Days**

**}**

| a. | **int terms = Terms.Net30Days;** |
| --- | --- |
| b. | **int terms = Terms[0];** |
| c. | **int terms = (int) Terms.Net30Days;** |
| d. | **int terms = Net30Days;** |

39. Which of the following data types can’t be used for storing the number 123.4567?

| a. | double | c. | decimal |
| --- | --- | --- | --- |
| b. | int | d. | float |

40. Which of the following is *not* a binary operator?

| a. | + | c. | % |
| --- | --- | --- | --- |
| b. | ++ | d. | / |

41. A structure defines

| a. | a reference type | c. | an enumeration |
| --- | --- | --- | --- |
| b. | a value type | d. | a form |

42. An enumeration defines a set of related

| a. | methods | c. | variables |
| --- | --- | --- | --- |
| b. | constants | d. | classes |

43. What value is assigned to the variable named payment when the following code is executed?

**decimal? paymentAmount = null;**

**decimal payment = paymentAmount ?? 9.99m;**

| a. | null | c. | 9.99 |
| --- | --- | --- | --- |
| b. | 0 | d. | 10 |

44. To keep null reference compiler warnings from being displayed, you can code the

| a. | null-conditional operator (**?**) | c. | null-forgiving operator (**!**) |
| --- | --- | --- | --- |
| b. | null-coalescing operator (**??**) | d. | **#nullable** preprocessor directive |