

Chapter 01: A First Program Using C#

1. Machine language is expressed as a series of 1s and 0s.

- a. True
- b. False

ANSWER: True

FEEDBACK: Correct Correct. Machine language is expressed as a series of 1s and 0s. The 1s represent switches that are on, and the 0s represent switches that are off.
Incorrect Incorrect. Machine language is expressed as a series of 1s and 0s. The 1s represent switches that are on, and the 0s represent switches that are off.

POINTS: 1

REFERENCES: The Programming Process

QUESTION TYPE: True / False

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.01 - Describe the programming process

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2. C# programmers must use Pascal casing when creating method names to produce an executable program.

- a. True
- b. False

ANSWER: False

FEEDBACK: Correct Correct. Capitalizing the first letter of all new words in an identifier, even the first one, as in `CalculateWithholdingTax()`, is a style called *Pascal casing* or *upper camel casing*. It is legal to start a method name with a lowercase letter, but the convention used in C# is for methods to be named using Pascal casing.
Incorrect Incorrect. Capitalizing the first letter of all new words in an identifier, even the first one, as in `CalculateWithholdingTax()`, is a style called *Pascal casing* or *upper camel casing*. It is legal to start a method name with a lowercase letter, but the convention used in C# is for methods to be named using Pascal casing.

POINTS: 1

REFERENCES: The Programming Process

QUESTION TYPE: True / False

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.02 - Differentiate between procedural and object-oriented programming

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3. The C# programming language was developed as an object-oriented and component-oriented language.

- a. True
- b. False

ANSWER: True

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FEEDBACK:

Correct Correct. The C# programming language was developed as an object-oriented and component-oriented language. It is part of Microsoft Visual Studio, a package designed for developing applications that run on Windows computers. Unlike other programming languages, C# allows every piece of data to be treated as an object and to consistently employ the principles of object-oriented programming. C# provides constructs for creating components with properties, methods, and events, making it an ideal language for modern programming, where building small, reusable components is more important than building huge, stand-alone applications.

Incorrect Incorrect. The C# programming language was developed as an object-oriented and component-oriented language. It is part of Microsoft Visual Studio, a package designed for developing applications that run on Windows computers. Unlike other programming languages, C# allows every piece of data to be treated as an object and to consistently employ the principles of object-oriented programming. C# provides constructs for creating components with properties, methods, and events, making it an ideal language for modern programming, where building small, reusable components is more important than building huge, stand-alone applications.

POINTS: 1

REFERENCES: The C# Programming Language

QUESTION TYPE: True / False

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.04 - Describe the C# programming language

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4. When the keyword `void` is used in the `Main()` method header, it indicates that the `Main()` method is empty.

- a. True
- b. False

ANSWER: False

FEEDBACK:

Correct Correct. When the keyword `void` is used in the `Main()` method header, it does not indicate that the `Main()` method is empty or that it has no effect, but rather that the method does not return any value when called.

Incorrect Incorrect. When the keyword `void` is used in the `Main()` method header, it does not indicate that the `Main()` method is empty or that it has no effect, but rather that the method does not return any value when called.

POINTS: 1

REFERENCES: Writing a C# Program that Produces Output

QUESTION TYPE: True / False

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.05 - Write a C# program that produces output

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5. The Visual Studio IDE gives you advanced features such as syntax coloring and automatic statement completion.

- a. True
- b. False

ANSWER: True

FEEDBACK: *Correct* Correct. The code is displayed in color so that you can more easily identify parts of your program. Reserved words appear in blue, comments in green, and identifiers in black. Automatic code completion is also possible in the Visual Studio IDE.

Incorrect Incorrect. The code is displayed in color so that you can more easily identify parts of your program. Reserved words appear in blue, comments in green, and identifiers in black. Automatic code completion is also possible in the Visual Studio IDE.

POINTS: 1

REFERENCES: Compiling and Executing a C# Program

QUESTION TYPE: True / False

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.08 - Compile and execute a C# program using the command prompt and using Visual Studio

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6. Internally, computers are constructed from circuitry that consists of small on/off switches. What is the most basic circuitry-level language that computers use to control the operation of those switches called?

- a. syntax
- b. machine language
- c. compiler
- d. program

ANSWER: b

FEEDBACK:

- a. Incorrect. Syntax is the rules of a high-level language. Each high-level language has its own syntax.
- b. Correct. Machine language is expressed as a series of 1s and 0s. The 1s represent switches that are on, and the 0s represent switches that are off.
- c. Incorrect. A compiler translates high-level language statements into machine code.
- d. Incorrect. A computer program is a set of instructions that tells a computer what to do. Programs are also called software.

POINTS: 1

REFERENCES: The Programming Process

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.01 - Describe the programming process

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7. What kind of programming language allows you to use a vocabulary of reasonable terms such as "read," "write," or "add" instead of the sequence of on/off switches that perform these tasks?

- a. high-level
- b. machine-level
- c. low-level
- d. switch-level

ANSWER:

a

FEEDBACK:

- a. Correct. A high-level programming language allows you to use a limited vocabulary of reasonable keywords. Keywords are predefined and reserved identifiers that have special meaning in a language. High-level language programs contain keywords, such as read, write, and add, that you use instead of the sequence of on/off switches that perform these tasks.
- b. Incorrect. Machine language is expressed as a series of 1s and 0s. The 1s represent switches that are on, and the 0s represent switches that are off.
- c. Incorrect. A low-level programming language, such as assembly language, is only a small step above the representation of computer instructions as a series of 1s and 0s.
- d. Incorrect. "A switch-level programming language" is an undefined term but it describes a low-level programming language that where toggle switches can be used as part of configuration.

POINTS:

1

REFERENCES: The Programming Process

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.01 - Describe the programming process

CTIVES:

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8. Programmers make use of what type of program in order to translate higher-level language statements into machine code?

- a. a command prompt
- b. an IDE
- c. a compiler
- d. a JIT

ANSWER:

c

FEEDBACK:

- a. Incorrect. The command line is the line on which you type a command in a system that uses a text interface. The command prompt is a request for input that appears at the beginning of the command line.
- b. Incorrect. The Integrated Development Environment (IDE) is a programming environment that allows you to issue commands by selecting choices from menus and clicking buttons. The IDE operates more like other software you may have used, such as a word-processing program or spreadsheet. Many programmers prefer using the IDE because it

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provides features such as color-coded keywords and automatic statement completion.

- c. Correct. A compiler translates high-level language statements into machine code.
- d. Incorrect. The C# just in time (JIT) compiler must translate the intermediate code into executable code.

POINTS: 1

REFERENCES: The Programming Process

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.01 - Describe the programming process

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9. A program's execution of various statements and procedures in a correct order to produce desired results is referred to as what defining characteristic?

- a. the program's GUI
- b. the attributes utilized by the program
- c. the methods of the program
- d. the program's logic

ANSWER: d

FEEDBACK:

- a. Incorrect. The acronym GUI stands for graphical user interface.
- b. Incorrect. The attributes of an object represent its characteristics.
- c. Incorrect. Methods are compartmentalized, named program units containing instructions that accomplish tasks.
- d. Correct. The logic behind any program involves executing the various statements and methods in the correct order to produce the desired results.

POINTS: 1

REFERENCES: The Programming Process

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.01 - Describe the programming process

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10. What is the process of removing all syntax and logical errors from a program in order to create a working program that accomplishes all intended tasks known as?

- a. debugging
- b. compiling
- c. commenting out
- d. executing

ANSWER: a

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FEEDBACK:

- a. Correct. A bug is an error in a computer program. Debugging a program is the process of removing all syntax and logical errors from the program.
- b. Incorrect. A compiler is a computer program that translates high-level language statements into machine code.
- c. Incorrect. Commenting out a statement in a program causes that statement not to run.
- d. Incorrect. Executing a program is the same as running a program.

POINTS: 1

REFERENCES: The Programming Process

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.01 - Describe the programming process

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11. What type of program is created by the use of named memory locations and a series of steps or operations to manipulate the values of those memory locations?

- a. object-oriented
- b. component-oriented
- c. variable-oriented
- d. procedural

ANSWER: d

FEEDBACK:

- a. Incorrect. Object-oriented programming (OOP) is a programming technique that features objects, classes, encapsulation, interfaces, polymorphism, and inheritance.
- b. Incorrect. Component-oriented programming creates programs by building and connecting components that are reusable pieces of software with properties, methods, and events.
- c. Incorrect. "Variable-oriented programming" is an undefined term. It is likely a confusion of the use of variables, which are named memory locations, in programs.
- d. Correct. A procedural program is a program created by writing a series of steps or operations to manipulate values.

POINTS: 1

REFERENCES: Procedural and Object-Oriented Programming

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.02 - Differentiate between procedural and object-oriented programming

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12. What term describes a one-word name with no embedded spaces that references a variable in a program?

- a. behavior
- b. bug

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- c. identifier
- d. attribute

ANSWER:

c

FEEDBACK:

- a. Incorrect. The behaviors of an object are the methods associated with it.
- b. Incorrect. Bugs are program errors.
- c. Correct. Identifiers are the names of program components such as variables, classes, and methods.
- d. Incorrect. The attributes of an object are the characteristics of it.

POINTS:

1

REFERENCES:

Procedural and Object-Oriented Programming

QUESTION TYPE:

Multiple Choice

HAS VARIABLES:

False

LEARNING OBJECTIVES:

MVC#.FARR.18.01.02 - Differentiate between procedural and object-oriented programming

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13. A series of four or five comparisons and calculations that together determine an employee's withholding tax value might be grouped using what sort of logical unit?

- a. an attribute
- b. a method
- c. a class
- d. a structure

ANSWER:

b

FEEDBACK:

- a. Incorrect. The attributes of an object are the characteristics of an object.
- b. Correct. A method is an encapsulated series of statements that carry out a task.
- c. Incorrect. A class is a category of objects or a type of object.
- d. Incorrect. "Structure" describes a physical arrangement or sequence. Structure may refer to ways to sort data, or a logical flow of instructions

POINTS:

1

REFERENCES:

Procedural and Object-Oriented Programming

QUESTION TYPE:

Multiple Choice

HAS VARIABLES:

False

LEARNING OBJECTIVES:

MVC#.FARR.18.01.02 - Differentiate between procedural and object-oriented programming

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14. What programming style capitalizes the first letter of all new words in an identifier, including the first one?

- a. camel casing
- b. upper casing

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- c. OOP casing
- d. Pascal casing

ANSWER: d

FEEDBACK:

- a. Incorrect. Camel casing capitalizes the first letter of every word except the first.
- b. Incorrect. Upper casing capitalizes every letter.
- c. Incorrect. There is no strict and agreed upon object-oriented programming casing.
- d. Correct. Pascal casing, also called upper camel casing, capitalizes the first letter of each word, including the first.

POINTS: 1

REFERENCES: Procedural and Object-Oriented Programming

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.02 - Differentiate between procedural and object-oriented programming

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15. What is an object in relation to a defined class in a programming language?

- a. It is a property of the class.
- b. It is an interface to the class.
- c. It is an instance of the class.
- d. It defines the class state.

ANSWER: c

FEEDBACK:

- a. Incorrect. A property of a class is a member of a class that provides access to a field of a class. Properties define how fields are set and retrieved.
- b. Incorrect. An interface is a collection of abstract methods (and perhaps other members) that can be used by any class as long as the class provides a definition to override the interface's abstract definitions.
- c. Correct. An object is an instance of a class; it is one tangible example of a class.
- d. Incorrect. The state of a class or an object is the value of all of its attributes.

POINTS: 1

REFERENCES: Features of Object-Oriented Programming Languages

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.03 - Describe the features of object-oriented programming languages

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16. What technique involves the packaging of an object's attributes and methods into a cohesive unit that can be used as an undivided entity?

- a. encapsulation

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- b. polymorphism
- c. inheritance
- d. interface

ANSWER:

a

FEEDBACK:

- a. Correct. Encapsulation is the technique of packaging an object's attributes and methods into a cohesive unit that can be used as an undivided entity. Programmers sometimes refer to encapsulation as using a black box, a device you use without regard for its internal mechanisms.
- b. Incorrect. Polymorphism is the ability to create methods that act appropriately depending on the context.
- c. Incorrect. Inheritance provides the ability to extend a class so as to create a more specific class.
- d. Incorrect. The interface of an object is the interaction between the method and object. For example, if you can fill your vehicle with gasoline, it is because you understand the interface between the gas pump nozzle and the vehicle's gas tank opening.

POINTS:

1

REFERENCES: Features of Object-Oriented Programming Languages

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.03 - Describe the features of object-oriented programming languages

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17. Encapsulation is similar to using a device without regard for the internal mechanisms. What is the common term for this type of device?

- a. interface
- b. black box
- c. object
- d. blue box

ANSWER:

b

FEEDBACK:

- a. Incorrect. The interface is the interaction between a method and an object. While it is true that when an object is encapsulated the user must understand only the interface, the word "interface" is not a common term that describes a device that hides internal mechanisms.
- b. Correct. Programmers sometimes refer to encapsulation as using a black box, a device you use without regard for its internal mechanisms.
- c. Incorrect. An object is an instance of class; it is a tangible example of a class.
- d. Incorrect. A blue box is a device for generating the tones that older telephone computers used.

POINTS:

1

REFERENCES: Features of Object-Oriented Programming Languages

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

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LEARNING OBJECTIVES: MVC#.FARR.18.01.03 - Describe the features of object-oriented programming languages

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18. What can be used to extend an existing class so as to create a more specific class?

- a. inheritance
- b. encapsulation
- c. polymorphism
- d. abstraction

ANSWER:

a

FEEDBACK:

- a. Correct. Inheritance provides the ability to extend a class so as to create more specific classes. The more specific classes contain all the attributes and methods of the more general class and usually contain new attributes or methods as well.
- b. Incorrect. Encapsulation is the technique of packaging an object's attributes and methods into a cohesive unit that can be used as an undivided entity. Programmers sometimes refer to encapsulation as using a black box, a device you use without regard for its internal mechanisms.
- c. Incorrect. Polymorphism is the ability to create methods that act appropriately depending on the context.
- d. Incorrect. Abstraction is the process of removing the details of a thing in order to model it with a simpler set of principles or ideas that represent the thing to be modeled well.

POINTS:

1

REFERENCES: Features of Object-Oriented Programming Languages

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.03 - Describe the features of object-oriented programming languages

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19. What information must be supplied when utilizing a method that requires additional information in order to operate?

- a. literal strings
- b. primitive data
- c. arguments
- d. namespace

ANSWER:

c

FEEDBACK:

- a. Incorrect. A literal string is a series of characters that is used exactly as entered, such as "Hello World!"
- b. Incorrect. Primitive data describes simple data items, such as integers or characters, from which more complex data can be built.
- c. Correct. Arguments represent information that a method needs to perform its task.

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- d. Incorrect. A namespace is a constructor that acts like a container to provide a way to group similar classes.

POINTS: 1

REFERENCES: Writing a C# Program that Produces Output

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.05 - Write a C# program that produces output

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20. The program you are creating must output information onto the screen, and then position the cursor on the next line in preparation for additional output. What method should you use?

- a. Write()
- b. Println()
- c. Main()
- d. WriteLine()

ANSWER: d

FEEDBACK:

- a. Incorrect. With Write(), the cursor does not advance to a new line; it remains on the same line as the output.
- b. Incorrect. Writing Println() causes an error because this is not a built-in method in C#.
- c. Incorrect. The Main() method is the starting point for every program.
- d. Correct. The WriteLine() method is a built-in method that is part of the C# language. It displays output on the screen and positions the cursor on the next line, where additional output might subsequently be displayed.

POINTS: 1

REFERENCES: Writing a C# Program that Produces Output

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.05 - Write a C# program that produces output

CTIVES:

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21. What can be used as a construct that acts like a container to provide a way to group similar classes?

- a. namespace
- b. method
- c. object
- d. black box

ANSWER: a

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FEEDBACK:

- a. Correct. A namespace is a construct that acts like a container to provide a way to group similar classes. To organize your classes, you can create your own namespaces. The `System` namespace, which is built into your C# compiler, holds commonly used classes.
- b. Incorrect. A method is an encapsulated series of statements that carry out a task.
- c. Incorrect. An object is a concrete entity that has attributes and behaviors; it is an instance of a class.
- d. Incorrect. A black box is any device that can be used without knowing how it works internally.

POINTS: 1

REFERENCES: Writing a C# Program that Produces Output

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.05 - Write a C# program that produces output

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22. The use of `void` and `static` are both examples of what predefined C# language component?

- a. classes
- b. attributes
- c. objects
- d. keywords

ANSWER: d

FEEDBACK:

- a. Incorrect. A class is a category of objects or a type of object. Neither `void` nor `static` is a class.
- b. Incorrect. The attributes of an object are its characteristics. Neither `void` nor `static` is a characteristic of an object.
- c. Incorrect. An object is a concrete entity that has attributes and behaviors; it is an instance of a class. Neither `void` nor `static` is an object.
- d. Correct. Keywords are predefined and reserved identifiers that have special meaning to the compiler. Both `void` and `static` are keywords in C#.

POINTS: 1

REFERENCES: Writing a C# Program that Produces Output

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.05 - Write a C# program that produces output

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23. What are nonexecuting statements that you can use to document or add notes to assist in the use of the program?

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- a. verbatim identifier
- b. program comments
- c. namespaces
- d. whitespaces

ANSWER: b

FEEDBACK:

- a. Incorrect. The verbatim identifier, @, is a prefix used when you wish to use a keyword as an identifier.
- b. Correct. Program comments are nonexecuting statements that document a program.
- c. Incorrect. A namespace is a construct that acts like a container to provide a way to group similar classes.
- d. Incorrect. Whitespace is any combination of spaces, tabs, and carriage returns (blank lines). You use whitespace to organize your program code and make it easier to read; it does not affect your program's execution.

POINTS: 1

REFERENCES: Improving Programs by Adding Comments and using the System Namespace

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.07 - Improve programs by adding comments and using the System namespace

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24. What must be done once a C# program has been finished before it can be used?
- a. It must be fed to a runtime interpreter.
 - b. It must be compiled into intermediate language.
 - c. It must be stripped of all comments before it can run.
 - d. It must be compiled in both the command line and within the Integrated Development Environment.

ANSWER: b

FEEDBACK:

- a. Incorrect. C# programs are not run through a runtime interpreter. An interpreter directly executes program statements without a compile step.
- b. Correct. After you write and save a program, two more steps must be performed before you can view the program output. The first step is to compile the program into intermediate language (IL).
- c. Incorrect. Program comments are nonexecuted statements; they can exist in a usable program.
- d. Incorrect. When you write, compile, and execute a C# program, you can use either a text editor and command line or the Visual Studio IDE. You would never need to use both.

POINTS: 1

REFERENCES: Compiling and Executing a C# Program

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.08 - Compile and execute a C# program using the command prompt and using

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CTIVES: Visual Studio

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25. Where can a method's name and information about what will be passed into the method and returned from it be found?

- a. in the body of the method
- b. in the method's keywords
- c. in the method's class definitions
- d. in the method's header

ANSWER: d

FEEDBACK:

- a. Incorrect. The method body is all of the instructions contained within a pair of curly braces ({ }).
- b. Incorrect. Keywords are predefined and reserved identifiers that have special meaning to the compiler.
- c. Incorrect. A class definition can have methods, but a method does not have a class definition.
- d. Correct. The method header is the first line of a method, which includes the method name and information about what will pass into and be returned from it.

POINTS: 1

REFERENCES: Writing a C# Program that Produces Output

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVE: MVC#.FARR.18.01.05 - Write a C# program that produces output

CTIVES:

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26. An identifier that is prefixed with an @ and allows you to use code written in other languages that do not have the same set of reserved keywords is known by what name?

- a. a language identifier
- b. a verbatim identifier
- c. a translating identifier
- d. a commenting identifier

ANSWER: b

FEEDBACK:

- a. Incorrect. An identifier is the name of a program component such as a variable, class, or method. There is no such thing as a language identifier in C# because the language does not need to be identified within the program.
- b. Correct. An identifier with an @ prefix is a verbatim identifier. This feature allows you to use code written in other languages that do not have the same set of reserved keywords. However, when you write original C# programs, you should not use the keywords as identifiers.
- c. Incorrect. An identifier is the name of a program component such as a variable, class, or method. There is no such thing as a translating identifier in C#.

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- d. Incorrect. An identifier is the name of a program component such as a variable, class, or method. There is no such thing as a commenting identifier in C#.

POINTS: 1

REFERENCES: Selecting Identifiers

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.06 - Select identifiers to use within your programs

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27. What command can be used from the Developer Command Prompt in order to compile a C# program?

- a. `c#-compile`
- b. `csc`
- c. `gcc-c#`
- d. `csharpc`

ANSWER: b

- FEEDBACK:
- a. Incorrect. `c#-compile` is not a recognized command for the Developer Command Prompt.
 - b. Correct. In the Developer Command Prompt window, you change the path to the location of your file and then type `csc`, followed by the name of the file that contains the source code. The command `csc` stands for C Sharp compiler.
 - c. Incorrect. `gcc-c#` is not a recognized command for the Developer Command Prompt.
 - d. Incorrect. `csharpc` is not a recognized command for the Developer Command Prompt.

POINTS: 1

REFERENCES: Compiling and Executing a C# Program

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.08 - Compile and execute a C# program using the command prompt and using Visual Studio

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28. When writing C# code, how do you indicate a namespace?

- a. You must specify the namespace by using the `namespace` keyword, followed by the namespace.
- b. You must use the `declare namespace` keywords, followed by the namespace.
- c. You must utilize the `using` clause, or using directive, by specifying `using`, followed by the namespace.
- d. You must use create a file called "namespace", and include all namespace code in this file. Then, the namespace can be used by name in your program.

ANSWER: c

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FEEDBACK:

- a. Incorrect. The `namespace` keyword is used to declare a namespace, not to use a namespace.
- b. Incorrect. There is no keyword `declare` in C#.
- c. Correct. When you need to repeatedly use a class from the same namespace, you can shorten the statements you type by adding a clause that indicates a namespace containing the class. You indicate a namespace with a `using` clause, or `using` directive.
- d. Incorrect. You should not name files after keywords, and `namespace` is a keyword.

POINTS: 1

REFERENCES: Improving Programs by Adding Comments and Using the System Namespace

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.07 - Improve programs by adding comments and using the System namespace

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29. What is of the following NOT a keyword by the C# language?

- a. `implicit`
- b. `catch`
- c. `static`
- d. `global`

ANSWER: d

FEEDBACK:

- a. Incorrect. The word `implicit` is a keyword in C#. Keywords are predefined and reserved identifiers that have special meaning in a language.
- b. Incorrect. The word `catch` is a keyword in C#. Keywords are predefined and reserved identifiers that have special meaning in a language.
- c. Incorrect. The word `static` is a keyword in C#. Keywords are predefined and reserved identifiers that have special meaning in a language.
- d. Correct. The word `global` is not a keyword in C#. Keywords are predefined and reserved identifiers that have special meaning in a language.

POINTS: 1

REFERENCES: Selecting Identifiers

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.06 - Select identifiers to use within your programs

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30. What statement regarding the C# programming language is accurate?

- a. The C# programming language was developed as a procedural language.
- b. C# only allows specific pieces of data to be treated as objects.

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- c. C# provides constructs for creating components with properties, methods, and events.
- d. C# is modeled after the COBOL programming language.

ANSWER: c

FEEDBACK:

- a. Incorrect. C# is an object-oriented and component-oriented programming language.
- b. Incorrect. Unlike other programming languages, C# allows every piece of data to be treated as an object and to consistently employ the principles of object-oriented programming.
- c. Correct. C# provides constructs for creating components with properties, methods, and events, making it an ideal language for modern programming, where building small, reusable components is more important than building huge, stand-alone applications.
- d. Incorrect. C# is modeled after the C++ programming language but is considered easier to learn. Some of the most difficult features to understand in C++ have been eliminated in C#.

POINTS: 1

REFERENCES: The C# Programming Language

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.04 - Describe the C# programming language

CTIVES:

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Match each item with a statement below:

- a. syntax
- b. logical error
- c. command line
- d. command prompt
- e. state of an object
- f. interface
- g. literal string
- h. inheritance
- i. whitespace
- j. just in time compiler

REFERENCES: Glossary

QUESTION TYPE: Matching

HAS VARIABLES: False

LEARNING OBJECTIVES: MVC#.FARR.18.01.01 - Describe the programming process

CTIVES: MVC#.FARR.18.01.02 - Differentiate between procedural and object-oriented programming

MVC#.FARR.18.01.03 - Describe the features of object-oriented programming languages

MVC#.FARR.18.01.05 - Write a C# program that produces output

MVC#.FARR.18.01.08 - Compile and execute a C# program using the command prompt and using Visual Studio

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31. The rules of a high-level programming language

ANSWER:

a

POINTS:

1

32. Adding when you should be multiplying

ANSWER:

b

POINTS:

1

33. The line on which you type a command in a system that uses a text interface

ANSWER:

c

POINTS:

1

34. A request for input that appears at the beginning of the command line

ANSWER:

d

POINTS:

1

35. The value of an object's attributes at any point in time

ANSWER:

e

POINTS:

1

36. The description of interaction between a method and an object

ANSWER:

f

POINTS:

1

37. A series of characters that will be used exactly as entered

ANSWER:

g

POINTS:

1

38. The ability to extend a class to create a more specific class

ANSWER:

h

POINTS:

1

39. Any combination of spaces, tabs, and carriage returns (blank lines)

ANSWER:

i

POINTS:

1

40. Translates intermediate code into executable code

ANSWER:

j

POINTS:

1

41. What are the attributes and state of an object?

ANSWER: Object-oriented programming (OOP) is an extension of procedural programming. OOP uses

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variables and methods like procedural programs do, but it focuses on objects. An object is a concrete entity that has attributes and behaviors. The attributes of an object are the features it "has"; the values of an object's attributes constitute the state of the object. For example, attributes of a paycheck include its payee and monetary value, and the state of those attributes might be "Alice Nelson" and \$400.

POINTS: 1

REFERENCES: Procedural and Object-Oriented Programming

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

STUDENT ENTRY MODE: Basic

LEARNING OBJECTIVES: MVC#.FARR.18.01.02 - Differentiate between procedural and object-oriented programming

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42. Explain the concept of methods in object-oriented programming.

ANSWER: For convenience, the individual operations used in a computer program often are grouped into logical units called methods. For example, a series of four or five comparisons and calculations that together determine an employee's federal tax withholding value might be grouped as a method named `CalculateFederalWithholding()`.

POINTS: 1

REFERENCES: Procedural and Object-Oriented Programming

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

STUDENT ENTRY MODE: Basic

LEARNING OBJECTIVES: MVC#.FARR.18.01.02 - Differentiate between procedural and object-oriented programming

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43. What are the features supported by object-oriented programming?

ANSWER: For a language to be considered object-oriented, it must support the following features:

- * Classes
- * Objects
- * Encapsulation and Interfaces
- * Inheritance
- * Polymorphism

POINTS: 1

REFERENCES: Features of Object-Oriented Programming Languages

QUESTION TYPE: Subjective Short Answer

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HAS VARIABLES: False

STUDENT ENTRY MODE: Basic

LEARNING OBJECTIVES: MVC#.FARR.18.01.03 - Describe the features of object-oriented programming languages

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44. Explain the main characteristics of encapsulation.

ANSWER: Like procedural programs, object-oriented programs have variables (attributes) and procedures (methods), but the attributes and methods are encapsulated into objects that are then used much like real-world objects. Encapsulation is the technique of packaging an object's attributes and methods into a cohesive unit that can be used as an undivided entity. Programmers sometimes refer to encapsulation as using a "black box," a device you use without regard for the internal mechanisms. If an object's methods are well written, the user is unaware of the low-level details of how the methods are executed; in such a case, the user must understand only the interface or interaction between the method and object. For example, if you can fill your Automobile with gasoline, it is because you understand the interface between the gas pump nozzle and the vehicle's gas tank opening. You don't need to understand how the pump works or where the gas tank is located inside your vehicle. If you can read your speedometer, it does not matter how the display figure is calculated. In fact, if someone produces a new, more accurate speedometer and inserts it into your Automobile, you don't have to know or care how it operates, as long as the interface remains the same as the previous one. The same principles apply to well-constructed objects used in object-oriented programs.

POINTS: 1

REFERENCES: Features of Object-Oriented Programming Languages

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

STUDENT ENTRY MODE: Basic

LEARNING OBJECTIVES: MVC#.FARR.18.01.03 - Describe the features of object-oriented programming languages

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45. Explain the main characteristics of inheritance.

ANSWER: Inheritance provides the ability to extend a class so as to create a more specific class. The more specific class contains all the attributes and methods of the more general class, and usually contains new attributes or methods as well. For example, if you have created a Dog class, you might then create a more specific class named ShowDog. Each instance of the ShowDog class would contain all the attributes and methods of a Dog, along with additional methods or attributes.

POINTS: 1

REFERENCES: Features of Object-Oriented Programming Languages

QUESTION TYPE: Subjective Short Answer

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HAS VARIABLES: False

STUDENT ENTRY Basic

MODE:

LEARNING OBJECTIVES: MVC#.FARR.18.01.03 - Describe the features of object-oriented programming languages

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46. How would you compare C# with Java?

ANSWER: C# is very similar to Java because Java was also based on C++. However, C# is more truly object-oriented. Unlike in Java, every piece of data in C# is an object, providing all data with increased functionality. In Java, simple data types are not objects; therefore, they do not work with built-in methods. Additionally, in Java, data can only be passed to and from methods using a copy; C# omits this limitation.

POINTS: 1

REFERENCES: The C# Programming Language

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

STUDENT ENTRY Basic

MODE:

LEARNING OBJECTIVES: MVC#.FARR.18.01.04 - Describe the C# programming language

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47. What are the components of a C# method?

ANSWER: Every method in C# contains a header and a body. A method header includes the method name and information about what will pass into and be returned from a method. The method body of every method is contained within a pair of curly braces and includes all the instructions executed by the method.

POINTS: 1

REFERENCES: Writing a C# Program that Produces Output

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

STUDENT ENTRY Basic

MODE:

LEARNING OBJECTIVES: MVC#.FARR.18.01.05 - Write a C# program that produces output

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48. What is the meaning of the keyword `static` in C# in a method header?

ANSWER: In C#, the reserved keyword `static` indicates that the method will be executed through a

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class-not by a variety of objects. It means that you do not need to create an object to use the method; rather, the method is invoked using the class name.

POINTS: 1

REFERENCES: Writing a C# Program that Produces Output

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

STUDENT ENTRY Basic

MODE:

LEARNING OBJECTIVES: MVC#.FARR.18.01.05 - Write a C# program that produces output

CTIVES:

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49. What are the requirements when choosing an identifier for a C# class?

ANSWER: You can define a C# class using any identifier you need, as long as it meets the following requirements:

- * An identifier must begin with an underscore, the "at" sign (@), or a letter. (Letters include foreign-alphabet letters, which are contained in the set of characters known as Unicode.)
- * An identifier can contain only letters, digits, underscores, and the "at" sign (@). It cannot contain spaces or any other punctuation or special characters such as #, \$, or &.
- * An identifier cannot be a C# reserved keyword, such as `class` or `void`. (Actually, you can use a keyword as an identifier if you precede it with an "at" sign, as in `@class`. An identifier with an @ prefix is a verbatim identifier. This feature allows you to use code written in other languages that do not have the same set of reserved keywords. However, when you write original C# programs, you should not use the keywords as identifiers.)

POINTS: 1

REFERENCES: Selecting Identifiers

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

STUDENT ENTRY Basic

MODE:

LEARNING OBJECTIVES: MVC#.FARR.18.01.06 - Select identifiers to use within your programs

CTIVES:

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50. What are the types of comments supported by C#?

ANSWER: There are three types of comments in C#:

- * Line comments start with two forward slashes (//) and continue to the end of the current line. Line comments can appear on a line by themselves, or they can occupy part of a line following executable code.
- * Block comments start with a forward slash and an asterisk (/*) and end with an asterisk and a forward slash (*/). Block comments can appear on a line by themselves, on a line before executable code, or after executable code. When a comment is long, block comments can

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extend across as many lines as needed.

* C# also supports a special type of comment used to create documentation from within a program. These comments, called XML-documentation format comments, use a special set of tags within angle brackets (<>). (XML stands for Extensible Markup Language.)

POINTS: 1

REFERENCES: Improving Programs by Adding Comments and Using the System Namespace

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

STUDENT ENTRY: Basic

MODE:

LEARNING OBJECTIVES: MVC#.FARR.18.01.07 - Improve programs by adding comments and using the System namespace

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