# C-Sharp Language Review

January 1

# 2021

(Version 2021.01)   Use this quiz to check your understanding of C# code, grammar and terminology.

Self-Check Quiz

```csharp
 1)  using System;
 2)  using System.Collections.Generic;
 3)  using CSharp.Language.Quiz.Entities;
 4)
 5)  namespace CSharp.Language.Quiz
 6)  {
 7)      public class Program
 8)      {
 9)          private static Random rnd = new Random();
10)
11)          public static void Main(string[] args)
12)          {
13)              Program app = new Program(args);
14)
15)              app.AssignMarks(30, 80);
16)
17)              foreach (Student person in app.Students)
18)              {
19)                  System.Console.WriteLine("Name: " + person.Name);
20)                  foreach (EarnedMark item in person.Marks)
21)                      System.Console.WriteLine("\t" + item);
22)              }
23)          }
24)
25)          private List<Student> _students = new List<Student>();
26)
27)          public List<Student> Students
28)          {
29)              get { return _students; }
30)              set { _students = value; }
31)          }
32)
33)          public Program(string[] studentNames)
34)          {
35)              WeightedMark[] CourseMarks = new WeightedMark[4];
36)              CourseMarks[0] = new WeightedMark("Quiz 1", 20);
37)              CourseMarks[1] = new WeightedMark("Quiz 2", 20);
38)              CourseMarks[2] = new WeightedMark("Exercises", 25);
39)              CourseMarks[3] = new WeightedMark("Lab", 35);
40)              int[] possibleMarks = new int[4] { 25, 50, 12, 35 };
41)
42)              foreach (string name in studentNames)
43)              {
44)                  EarnedMark[] marks = new EarnedMark[4];
45)                  for (int i = 0; i < possibleMarks.Length; i++)
46)                      marks[i] = new EarnedMark(CourseMarks[i], possibleMarks[i], 0);
47)                  Students.Add(new Student(name, marks));
48)              }
49)          }
50)
51)          public void AssignMarks(int min, int max)
52)          {
53)              foreach (Student person in Students)
54)                  foreach (EarnedMark item in person.Marks)
55)                      item.Earned = (rnd.Next(min, max) / 100.0) * item.Possible;
56)          }
57)      }
58)  }
59)
60)  namespace CSharp.Language.Quiz.Entities
61)  {
62)      public class Student
63)      {
64)          public string Name { get; private set; }
65)          public EarnedMark[] Marks { get; private set; }
66)
67)          public Student(string name, EarnedMark[] marks)
```

```csharp
68)                {
69)                    Name = name;
70)                    Marks = marks;
71)                }
72)            }
73)
74)        public class WeightedMark
75)        {
76)            public int Weight { get; private set; }
77)            public string Name { get; private set; }
78)
79)            public WeightedMark(string name, int weight)
80)            {
81)                if (weight <= 0 || weight > 100)
82)                    throw new Exception("Invalid weight: must be greater than zero and at most 100");
83)                if (string.IsNullOrEmpty(name) || string.IsNullOrEmpty(name.Trim()))
84)                    throw new Exception("Name cannot be empty for weighted item");
85)                Weight = weight;
86)                Name = name;
87)            }
88)        }
89)
90)        public class EarnedMark : WeightedMark
91)        {
92)            public int Possible { get; private set; }
93)            private double _Earned;
94)            public double Earned
95)            {
96)                get { return _Earned; }
97)                set
98)                {
99)                    if (value < 0 || value > Possible)
100)                        throw new Exception("Invalid earned mark assigned");
101)                    _Earned = value;
102)                }
103)            }
104)
105)            public double Percent
106)            { get { return (Earned / Possible) * 100; } }
107)
108)            public double WeightedPercent
109)            { get { return Percent * Weight / 100; } }
110)
111)            public EarnedMark(WeightedMark markableItem, int possible, double earned)
112)                : this(markableItem.Name, markableItem.Weight, possible, earned)
113)            {
114)            }
115)
116)            public EarnedMark(string name, int weight, int possible, double earned)
117)                : base(name, weight)
118)            {
119)                if (possible <= 0)
120)                    throw new Exception("Invalid possible marks");
121)                Possible = possible;
122)                Earned = earned;
123)            }
124)
125)            public override string ToString()
126)            {
127)                return String.Format("{0} ({1})\t - {2}% ({3}/{4}) \t- Weighted Mark {5}%",
128)                        Name,
129)                        Weight,
130)                        Percent,
131)                        Earned,
132)                        Possible,
133)                        WeightedPercent);
134)            }
135)        }
136)    }
```

1) Which term best describes the boxed portion of the following code which is copied from line 90 of the attached code?

```
public class EarnedMark : WeightedMark
```

    a. Constructor
    b. Base Class
    c. Interface
    d. Sub Class

2) Which term best describes the boxed portion of the following code which is copied from line 106 of the attached code?

```
{ get { return (Earned / Possible) * 100; } }
```

    a. Local Variable
    b. Field
    c. Property
    d. Method Name

3) Which term best describes the boxed portion of the following code which is copied from line 79 of the attached code?

```
public WeightedMark(string name, int weight)
```

    a. Local Variable
    b. Field
    c. Property
    d. Method Name
    e. Constructor

4) Which term best describes the boxed portion of the following code which is copied from line 51 of the attached code?

```
public void AssignMarks(int min, int max)
```

    a. Local Variable
    b. Field
    c. Property
    d. Method Name
    e. Parameter

5) Which term best describes the boxed portion of the following code which is copied from line 9 of the attached code?

```
private static Random rnd = new Random();
```

    a. Local Variable
    b. Field
    c. Property
    d. Method Name
    e. Class

6) Which term best describes the boxed portion of the following code which is copied from line 19 of the attached code?

```
System.Console.WriteLine("Name: " + person.Name);
```

   a. Class Name
   b. Fully-Qualified Class Name
   c. Object Name
   d. Fully-Qualified Object Name

7) Which term best describes the boxed portion of the following code which is copied from line 13 of the attached code?

```
Program app = new Program(args);
```

   a. Class Name
   b. Method Name
   c. Object Name
   d. Namespace

8) Which term best describes the boxed portion of the following code which is copied from line 13 of the attached code?

```
Program app = new Program(args);
```

   a. Class Name
   b. Method Name
   c. Object Name
   d. Namespace

9) Which term best describes the boxed portion of the following code which is copied from line 2 of the attached code?

```
using System.Collections.Generic;
```

   a. Class Name
   b. Method Name
   c. Object Name
   d. Namespace

10) Which term best describes the boxed portion of the following code which is copied from line 13 of the attached code?
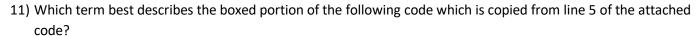
```
Program app = new Program(args);
```

   a. Parameter
   b. Return Type
   c. Argument
   d. Constructor

11) Which term best describes the boxed portion of the following code which is copied from line 5 of the attached code?

```
namespace CSharp.Language.Quiz
```

a. Class Name
b. Method Name
c. Object Name
d. Namespace

12) Which term best describes the boxed portion of the following code which is copied from line 21 of the attached code?

```
System.Console.WriteLine("\t" + item);
```

a. Class Name
b. Method Name
c. Object Name
d. Namespace

13) Which term best describes the boxed portion of the following code which is copied from line 21 of the attached code?

```
System.Console.WriteLine("\t" + item);
```

a. Instance Method Call
b. Static Method Call
c. Global Method Call
d. Constructor Call

14) Which term best describes the boxed portion of the following code which is copied from line 15 of the attached code?

```
app.AssignMarks(30, 80);
```

a. Instance Method Call
b. Static Method Call
c. Global Method Call
d. Constructor Call

15) Which term best describes the boxed portion of the following code which is copied from line 47 of the attached code?

```
Students.Add(new Student(name, marks));
```

a. Instance Method Call
b. Static Method Call
c. Global Method Call
d. Constructor Call

16) Which term best describes the boxed portion of the following code which is copied from line 79 of the attached code?

```
public WeightedMark(string name, int weight)
```

a. Argument
b. Return Type
c. Parameter
d. Constructor

17) Which term best describes the boxed portion of the following code which is copied from line 51 of the attached code?

```
public void AssignMarks(int min, int max)
```

a. Argument
b. Return Type
c. Parameter
d. Constructor

18) Which term best describes the boxed portion of the following code which is copied from line 125 of the attached code?

```
public override string ToString()
```

a. Argument
b. Return Type
c. Parameter
d. Constructor

19) Which term best describes the boxed portion of the following code which is copied from line 19 of the attached code?

```
System.Console.WriteLine("Name: " + person.Name);
```

a. Literal Value
b. Concatenation
c. Parameter
d. Data Type

20) Which term best describes the boxed portion of the following code which is copied from line 19 of the attached code?

```
System.Console.WriteLine("Name: " + person.Name);
```

a. Literal Value
b. Expression
c. Method Call
d. Assignment Statement

21) Which term best describes the boxed portion of the following code which is copied from line 19 of the attached code?

```
System.Console.WriteLine("Name: " + person.Name);
```

a. Call to a Property Getter
b. Call to a Property Setter
c. Argument
d. Return Type

22) Which term best describes the boxed portion of the following code which is copied from line 36 of the attached code?

```
CourseMarks[0] = new WeightedMark("Quiz 1", 20);
```

a. Data Type
b. Variable
c. Literal Value
d. Expression

23) Which term best describes the boxed portion of the following code which is copied from line 36 of the attached code?

```
CourseMarks[0] = new WeightedMark("Quiz 1", 20);
```

a. Data Type
b. Variable
c. Literal Value
d. Expression

24) Which term best describes the boxed portion of the following code which is copied from line 51 of the attached code?

```
public void AssignMarks(int min, int max)
```

a. Data Type
b. Variable
c. Literal Value
d. Expression

25) Which term best describes the boxed portion of the following code which is copied from line 79 of the attached code?

```
public WeightedMark(string name, int weight)
```

a. Data Type
b. Variable
c. Literal Value
d. Expression

26) Which term best describes the boxed portion of the following code which is copied from line 109 of the attached code?

```
{ get { return Percent * Weight / 100; } }
```

    a.  Data Type

    b.  Variable

    c.  Literal Value

    d.  Expression

27) Which term best describes the boxed portion of the following code which is copied from line 35 of the attached code?

```
WeightedMark[] CourseMarks = new WeightedMark[4];
```

    a.  Size of Array

    b.  Position in Array

    c.  Array Variable

    d.  Array Element

28) Which term best describes the boxed portion of the following code which is copied from line 37 of the attached code?

```
CourseMarks[1] = new WeightedMark("Quiz 2", 20);
```

    a.  Size of Array

    b.  Position in Array

    c.  Array Variable

    d.  Array Element

29) Which term best describes the boxed portion of the following code which is copied from line 37 of the attached code?

```
CourseMarks[1] = new WeightedMark("Quiz 2", 20);
```

    a.  Size of Array

    b.  Position in Array

    c.  Array Variable

    d.  Array Element

30) Which term best describes the boxed portion of the following code which is copied from line 36 of the attached code?

```
CourseMarks[0] = new WeightedMark("Quiz 1", 20);
```

    a.  Size of Array

    b.  Position in Array

    c.  Array Variable

    d.  Array Element

31) Which term best describes the boxed portion of the following code which is copied from line 40 of the attached code?

```
int[] possibleMarks = new int[4] { 25, 50, 12, 35 };
```

    a. Expression
    b. Array Initializer
    c. Value Body
    d. Placeholder

32) Which term best describes line 64 of the attached code?
    a. Auto-Implemented Property
    b. Fully-Implemented Property
    c. Field
    d. Constructor
    e. Method

33) Which term best describes lines 67-72 of the attached code?
    a. Auto-Implemented Property
    b. Fully-Implemented Property
    c. Field
    d. Constructor
    e. Method

34) Which term best describes lines 105-106 of the attached code?
    a. Auto-Implemented Property
    b. Fully-Implemented Property
    c. Field
    d. Constructor
    e. Method

35) Which term best describes lines 94-103 of the attached code?
    a. Auto-Implemented Property
    b. Fully-Implemented Property
    c. Field
    d. Constructor
    e. Method

36) Which term best describes line 93 of the attached code?
- a. Auto-Implemented Property
- b. Fully-Implemented Property
- c. Field
- d. Constructor
- e. Method

37) Which term best describes lines 125-134 of the attached code?
- a. Auto-Implemented Property
- b. Fully-Implemented Property
- c. Field
- d. Constructor
- e. Method