Contents

Introduction (Solutions)

Warm-up Exercises

1. Explain Boolean type `bool` and the meaning of logical operations AND (`&&`), OR (`||`) and negation (`!`). Provide a small example.

   Solution

   The Boolean data type holds either of the two values **true** or **false**. The AND (`&&`) and OR (`||`) operators are used to evaluate multiple conditions. The AND (`&&`) returns **true** if all conditions are true, and the OR (`||`) operator returns **true** if at least one of them is true. The negation operator (`!`) changes a Boolean value into its opposite.

   Example: `` ` `` bool b1 = true, b2 = false;

   Console.Write(b1 && !b2); // Displays true Console.Write(b1 || b2); // Displays true `` ` ``

2. Write a statement that declares a variable of type `int` and sits its value to 3.

   Solution

   ```
   int num = 3;
   ```

Questions

1. Write a statement that initializes a variable named `myHeightInMeters` to your height in meters. What should be the datatype of `myHeightInMeters`, and why?

   Solution

   `decimal myHeightInMeters = 1.74m;` The datatype should be `decimal` because a person's height in meters most likely needs the precision afforded by the decimal type.

2. What is wrong with the following? Will the error(s) appear at compilation time, or at execution time?

```
int age;
Console.WriteLine("Please enter your age:");
age = Console.ReadLine();
```

Solution

`Console.ReadLine()` returns a value of type `string`, which cannot be stored in an integer variable. This results in a compile time error.

3. What is the difference, if any, between 3 and "3"?

Solution

3 is an integer value, and "3" is a string value.

Problems

1. Declare and initialize 3 variables:

   (a) Each variable should have a different data type
   (b) Choose an appropriate name and value for each variable

   Then display the value of each variable on the screen.

   Solution

```
int number = 5;
string name = "Samuel";
float weight = 120.65f;

Console.WriteLine($"number: {number}");
Console.WriteLine($"name: {name}");
Console.WriteLine($"weight: {weight} kg");
```