0 1 Question **1** is about a dice game played against a computer.

The aim of the game is to get as close to a score of 21 as you can, without going over 21. If your score goes over 21 then you lose.

The player's score starts at 0.

For each turn:

- two dice (each numbered from 1 to 6) are rolled
- the total of the two dice rolls is added to the player's score
- the value of each dice and the player's new total score is output
- if the current score is less than 21, the player is asked if they would like to roll the dice again: if the player says yes, they get another turn; otherwise, the game ends.

At the end of the game, the program should work as follows:

- if the final score is 21, output a message to say the player has won
- if the final score is greater than 21, output a message to say the player has lost
- if the final score is less than 21, the program generates a random number between 15 and 21 inclusive:
  - if this random number is greater than the player's final score, output a message to say the player has lost
  - otherwise, output a message to say the player has won.

Figure 17 shows the output of a program that plays this dice game.

Figure 17

```
Roll 1: 1
Roll 2: 4
Current score: 5
Would you like to roll again? yes

Roll 1: 1
Roll 2: 6
Current score: 12
Would you like to roll again? yes

Roll 1: 1
Roll 2: 2
Current score: 15
Would you like to roll again? yes

Roll 1: 6
Roll 2: 1
Current score: 22
You lost!
```

Write a C# program to simulate this game.

The first line has been written for you in the answer grid.

The dice rolls are carried out by the program generating random numbers between 1 and 6. You will need to use the C# function `r.Next(a, b)` which generates a random integer in the range `a` to `b` starting at `a` but finishing one before `b`.

You **should** use meaningful variable name(s) and C# syntax in your answer.

The answer grid below contains vertical lines to help you indent your code.

[11 marks]

```
Random r = new Random();
```


0 2   **Figure 3** shows an incomplete C# program for a number guessing game.

- Line numbers are included but are not part of the program.

Figure 3

```
1      Random rGen = new Random();
2      int randomNumber;
3
4      Console.WriteLine("Enter a number");
5      int userNumber = Convert.ToInt32(Console.ReadLine());
6      while (userNumber < 1 || userNumber > 100)
7      {
8          Console.WriteLine("Invalid number");
9          userNumber = Convert.ToInt32(Console.ReadLine());
10     }
11     Console.WriteLine("Valid number entered");
12     if (randomNumber == userNumber)
13     {
14         Console.WriteLine("Number guessed correctly");
15     }
```

0 2 . 1 The program should generate a random number between 1 and 100 (including 1 and 100). This will be the number the user has to guess.

Write the C# code that should be used on **line 3** in **Figure 3** to:
- generate a random number between 1 and 100 inclusive
- assign this number to the appropriate variable from the program.

You **must** use `rGen.Next(a, b)` in your C# code.

`rGen.Next(a, b)` generates a random integer in the range `a` to `b` starting at `a` but finishing one before `b`

[2 marks]