

Solution to Question #2:



	A	B	C
1	Birthdays (17 of them - Julian dates 1-365)		
2	237		
3	97		
4	102		
5	303		
6	301		
7	216		
8	360		
9	333		
10	83		
11	254		
12	358		
13	90		
14	195		
15	39		
16	365		
17	247		
18	6		
19			
20			

This is the output of the macro. Notice that in rows 2 through row 18 we have random numbers that here would represent a day of the year, or in our study a random birthday. 6 means January 6th and 360 would represent December 25th, whereas 333 would be a date in late November.

Notice that all the output is in the same column. Column A is column 1, so we have Cells(i, 1) which refers to the ith row, where i goes from 2 to 18, and always refers to column 1.

The number 39 is in row 15 and column 1. Cells(15, 1).Value is the value 39, which represents February 8th, since January has 31 days.

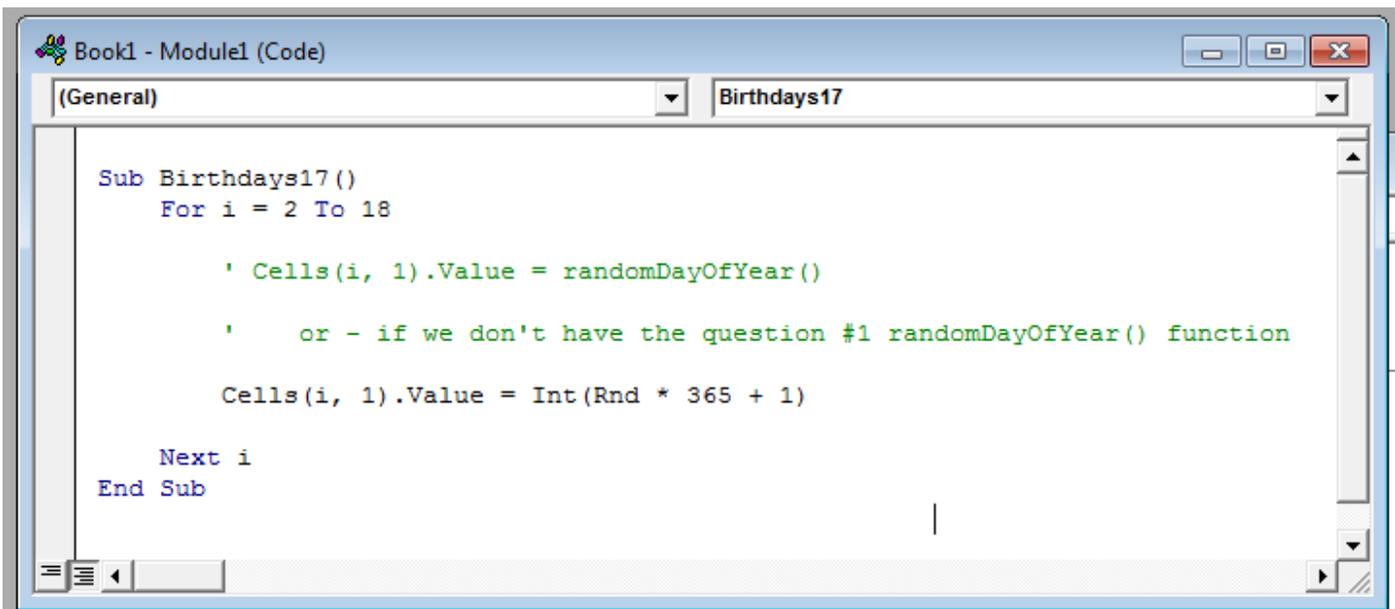
Rnd is a VBA function.

RAND() is an Excel spreadsheet function.

Both VBA and Excel have the INT() function available.

Both RAND() and Rnd generate a random number that is greater than or equal to 0, but is strictly less than 1.

Birthdays17 is a SUB. SUB is short for SUBPROGRAM or for SUBROUTINE. SUBS are also called PROCEDURES. SUBS DO something. SUBS do NOT return a result. VBA FUNCTIONS return a result, such as an INTEGER or a STRING or a SINGLE or DOUBLE numeric value such as 3.14159 or 17.75 or -22.5. Note that SINGLE and DOUBLE are #s with decimal points. INTEGERS are for whole numbers such as -12, 25, 0, 124 and so on.



```
Sub Birthdays17()  
    For i = 2 To 18  
        ' Cells(i, 1).Value = randomDayOfYear()  
        ' or - if we don't have the question #1 randomDayOfYear() function  
        Cells(i, 1).Value = Int(Rnd * 365 + 1)  
    Next i  
End Sub
```

Solution to Question #3:

Solution to the function that needs to generate random integers between -20 and 20. Note that there are 41 integers. 20 negative, 0, and 20 positive integers in the collection {-20, -19, -18, ..., -1, 0, 1, 2, 3, ..., 19, 20}. Notice also that 20 - (-20) is 40, not 41. Notice also that 365 - 1 is equal to 364, not 365. 6 minus 1 = 5, not 6.

Function randomPatchLocation() As Integer

```
randomPatchLocation = Int(Rnd * 41 - 20)
```

End Function

Solution to Question #4:

Write the Excel VBA function that takes arguments, also called parameters.

It will accept TWO arguments.

Name the 1st argument **lowInteger**.

Name the 2nd argument **highInteger**.

Your function can be named **randomInteger()**.

Your function will return a random integer number between **lowInteger** and **highInteger**. So if **lowInteger** is 1 and **highInteger** is 6, it would simulate the rolling of a die or used twice, a pair of dice.

Examples of the use of this function:

=randomInteger(1, 6)	=randomInteger(1, 365)
=randomInteger(-20, 20)	=randomInteger(1, 100)

Here are TWO different solutions to Question #4 problem.

I have named the 2nd version **randomInteger2()** here.

```
Function randomInteger(lowInteger As Integer, highInteger As Integer) As Integer
    howManyIntegers = highInteger - lowInteger + 1
    theRandomNum = Int(Rnd * howManyIntegers - lowInteger)
    randomInteger = theRandomNum
End Function
```

```
Function randomInteger2(lowInteger As Integer, highInteger As Integer) As Integer
    r = Int(Rnd * (highInteger - lowInteger + 1) + lowInteger)
    randomInteger = r
End Function
```

Note that the function NAME eventually takes on the ANSWER. That is how the FUNCTION returns its INTEGER result. Note the color **BLUE** and the color **RED** above help you to see that pattern. Functions return a RESULT of a certain TYPE.