COMP1022Q Review Questions Week 6

Q1)

You can use Mod in a cell formula. In VBA you do it like this: `5 Mod 2` . In a cell formula you do it like this: `MOD(5, 2)` . The result is the same. In this case, the result is 1.

Somebody wants to create the following result.

	A	B
1		
2	**Day of the month**	**Go to the gym?**
3	1	FALSE
4	2	TRUE
5	3	FALSE
6	4	FALSE
7	5	FALSE
8	6	TRUE
9	7	FALSE
10	8	FALSE
11	9	FALSE
12	10	TRUE
13	11	FALSE
14	12	FALSE
15	13	FALSE
16	14	TRUE
17	. . .	. . .

To make the result, a formula is entered into cell B3, which is then copied and pasted to all the cells underneath. The input is taken from column A (the day of the month). The result is in column B (`TRUE` or `FALSE`). What is the formula in cell B3?

Answer: _____

Q2)

Here is some VBA code.

```
Sub DrawCircles()
    Dim Radius As Integer
    Randomize

    For Radius = 8 To 50 Step 5
        If Radius Mod 2 = 1 Then
            ActiveSheet.Shapes.AddShape msoShapeOval, _
                Rnd() * 200, Rnd() * 200, _
                Radius * 2, Radius * 2
        End If
    Next
End Sub
```

This is basically a special variable which contains the number 9. For example, if you do `MsgBox msoShapeOval` it will show a 9.

Remember for ActiveSheet.Shapes.Addshape the last 4 parameters are:

- the x position
- the y position
- the width
- the height

What is the **largest number of circles** you can possibly see after you run the above code?

Answer: _____

What is the **smallest number of circles** you can possibly see after you run the above code?

Answer: _____

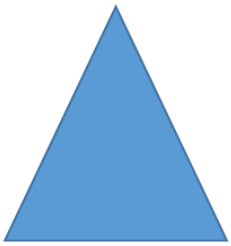
Q3)

If you add the shape

`msoShapeIsoscelesTriangle`

to a worksheet

it looks like this:



Here is some VBA code.

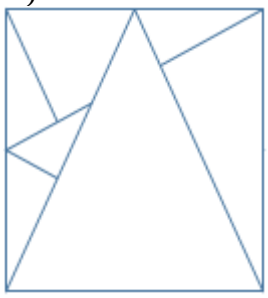
```
Sub DrawTriangles()

    Dim MyShape As Shape


    For Count = 1 To 4
        Set MyShape = _
            ActiveSheet.Shapes.AddShape(msoShapeIsoscelesTriangle, _
            50, 50, 100, 100)

        MyShape.Fill.ForeColor.RGB = vbWhite ' Fill shape with white
        MyShape.Line.Visible = True ' Show the shape line
        MyShape.Rotation = 90 * Count  ' Rotate triangle 90 degrees
    Next Count

End Sub
```

Remember for ActiveSheet.Shapes.Addshape the last 4 parameters are:

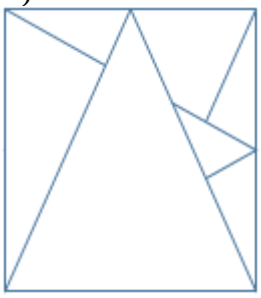
- the x position
- the y position
- the width
- the height

What do you see after the VBA code has finished?

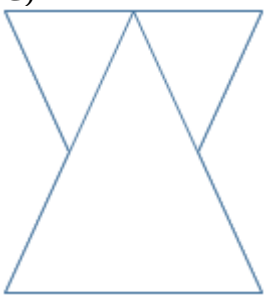
A)



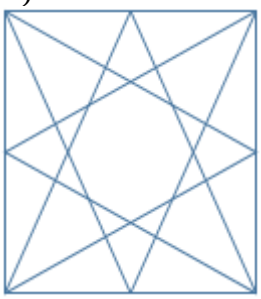
B)



C)



D)



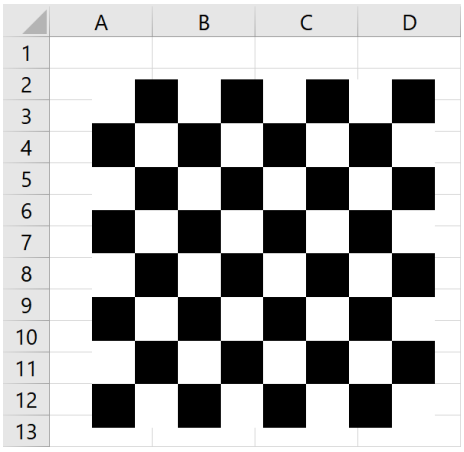
Answer (A/B/C/D): _____

Q4) Here is some VBA code. No error occurs when the code is executed.

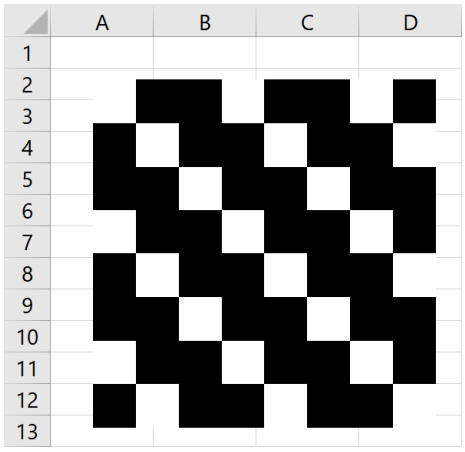
```
Sub DrawSquares()
    Dim Row As Integer, Col As Integer
    Dim Box As Shape
    For Row = 1 To 8
        For Col = 1 To 8
            Set Box = _
                ActiveSheet.Shapes.AddShape(msoShapeRectangle, _
                Col * 20, Row * 20, 20, 20)
            If Row Mod 3 = Col Mod 3 Then
                Box.Fill.ForeColor.RGB = vbWhite
            Else
                Box.Fill.ForeColor.RGB = vbBlack
            End If
            Box.Line.Visible = False ' Hide the box line
        Next
    Next
End Sub
```

What is the display of the worksheet after you run the above VBA code?

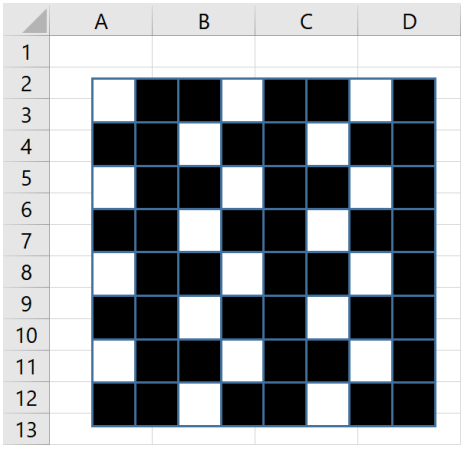
A)



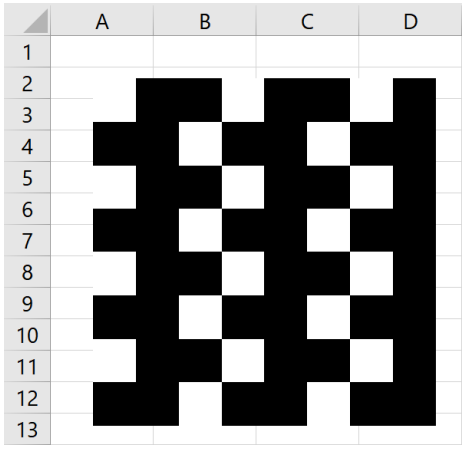
B)



C)



D)



Answer (A/B/C/D): _____

Answers to Week 6 Review Questions

Q1)

The answer is: =MOD(A3, 4)=2

By looking at column B, you can see there is a pattern of 4. So the number in column A is divided by 4, and the remainder gives us a pattern of 4. We need MOD(A3, 4) to do that. By looking carefully at the pattern shown in column B you can see the result of TRUE occurs every time when the result of MOD(A3, 4) is 2. So we need to compare the result of MOD(A3, 4) with 2. If they are the same, the final result is TRUE, otherwise the final result will be FALSE. So the final cell formula is =MOD(A3, 4)=2.

Q2) The answer to the first question is 4. The answer to the second question is 1.

This line of code:

```
For Radius = 8 To 50 Step 5
```

means that the values given to the variable Radius are 8, 13, 18, 23, 28, 33, 38, 43 and 48. This code:

```
If Radius Mod 2 = 1 Then
    . . . AddShape . . .
```

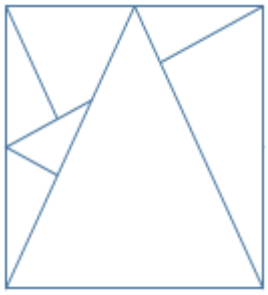
means that when those values are odd, i.e. 13, 23, 33 and 43, a circle shape will be added to the worksheet. Therefore, 4 circle shapes are added.

What is the **maximum number of circles** you can possibly see? The 4 shapes are added at random positions. So if the random positions are sufficiently different, you will see all 4 shapes.

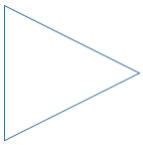
What is the **minimum number of circles** you can possibly see? The 4 shapes are put at random positions. So if you are unlucky and the random positions are the same, all 4 shapes will be at the same position. Each time a shape is added, it is bigger than the previously added shapes. So the last shape added is bigger than the previous 3 shapes added. If the last shape is at the same position as the previously added 3 shapes it will go on top of the previously added 3 shapes and will hide them. In that case you will only see 1 shape.

Q3)

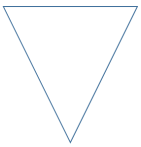
The answer is A:



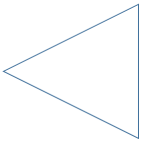
The variable Count starts with the value 1. The first triangle is rotated by 90 degrees.



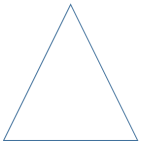
Then, Count becomes 2. The second triangle is rotated by 180 degrees. It is added on the top.

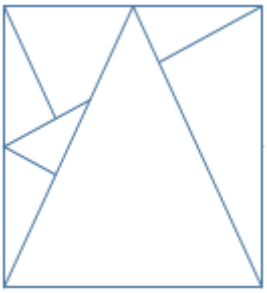


Next, Count becomes 3 and the third triangle is rotated by 270 degrees. It is added on the top of the previous triangles.



Then Count becomes 4 and the fourth triangle is rotated by 360 degrees (it looks the same as if no rotation has occurred). It is again added on the top of the previous triangles.





Q4)

The answer is B.

From this code:

```
If Row Mod 3 = Col Mod 3 Then
    Box.Fill.ForeColor.RGB = vbWhite
Else
    Box.Fill.ForeColor.RGB = vbBlack
End If
```

you know that when the remainders of dividing both values of the variables Row and Col by 3 are the same, the colour of the cell is set to white. Otherwise, the colour of the cell is set to black.

Here are some examples:

When Row is 1 and Col is 1, the remainders are both 1. The square is added at the position (20, 20) and is set to white.

When Row is 1 and Col is 2, the remainders are not the same. The square is added at the position (20, 40) and is set to black.

When Row is 1 and Col is 3, the remainders are not the same. The square is added at the position (20, 60) and is set to black.

When Row is 1 and Col is 4, the remainders are both 1. The square is added at the postion (20, 80) and is set to white.

The pattern is that for every 1 white square is added, two black squares are added next. So, only choice B and choice C follow this pattern.

But the code `Box.Line.Visible = False` removes the shape outline (the shape line). Therefore, choice C is not correct.