1. Which three lines of code set all the shapes to red?

   For i = 0 To NumButtons - 1
       shpCell(i).BackColor = vbRed
   Next i

2. Which two lines of code decide whether or not to set the colour of all the shapes to black?

   response = MsgBox(MsgQuestion & "Black", vbYesNoCancel + vbQuestion, "Change Colour?")
   If response = vbYes Then
      ....

3. The built-in Visual Basic constants 'vbYesNoCancel' and 'vbQuestion' determine the appearance of the MsgBox form. Name three other possible combinations of constants that could be used.

   Hint: Start typing MsgBox "Prompt", in your project and the options will appear in a dropdown box.

   - VbYesNo + vbInformation
   - VbOKOnly + vbExclamation
   - VbOkCancel + vbCritical

4. What is the essential difference between these two lines of code:

   LINE 1: response = MsgBox(MsgQuestion & "Black", vbYesNoCancel + vbQuestion, "Change Colour?")
   LINE 2: MsgBox MsgColour & "Black", vbOKOnly + vbExclamation, "Colour Changed"

   Line 1 uses MsgBox as a function, returning an integer value to the variable response. Parentheses are needed after the word "MsgBox". This lets the programmer get a value depending on which button the user clicks. Line 2 uses MsgBox as a statement. No value is returned and no parentheses are needed.

5. We declare the Constant 'Numbuttons' as equal to 9, i.e.

   Const Numbutton = 9

   Why then do we then loop from 0 to 8 in the program, when manipulating the shape colour properties? i.e.

   For i = 0 to NumButtons - 1 ....

   We loop from 0 to 8 because, by default, all arrays start numbering from zero unless forced otherwise.

6. Add two more command buttons to create the following patterns:
   a. Alternate blue and white.
   b. A pattern of red, green and yellow.

   ‘alternate blue and white

   For i = 0 To NumButtons - 1 Step 2
       shpCell(i).BackColor = vbBlue
       If i + 1 <= NumButtons - 1 Then
           shpCell(i + 1).BackColor = vbWhite
       End If
   Next i
Program Example 15  Control Arrays 1 Answers (cont)

'red, green and yellow

For i = 0 To NumButtons - 1
    Select Case i mod 3
        Case 0
            shpCell(i).BackColor = vbRed
        Case 1
            shpCell(i).BackColor = vbGreen
        Case Else
            'or Case 2
            shpCell(i).BackColor = vbYellow
    End Select
Next i

7. Extend the grid to 16 buttons. Modify the code to ensure that all the command buttons function correctly.

   1. Copy and paste 7 more buttons.
   2. Organise them into rows by index number. This will affect the patterns.

      0  1  2  3
      4  5  6  7
      8  9 10 11
     12 13 14 15

   3. Change the Constant 'NumButtons' to equal 16.
   4. Check the patterns. The fact that there is now an even number of columns will affect the results. The code may have to be modified.