

Solution to Fifth Quiz, May 4, 2017

The VBA array function **quiz5**, shown below, is used on the worksheet shown at the left. The selected output area is **B2:F5**. The first input range is **B1:F1** and the second input range is **A2:A5**. Determine the output that occurs from running this array function.

```
Function quiz5(xIn As Range, yIn As _
Range) As Variant
    Dim x As Variant
    Dim y As Variant
    Dim Nx As Integer
    Dim Ny As Integer
    Dim i As Integer
    Dim j As Integer
    x = xIn
    y = yIn
    Nx = UBound(x, 2)
```

```
    Ny = UBound(y, 1)
    Dim result() As Double
    ReDim result(1 To Ny, 1 To Nx)
    For i = 1 To Ny
        For j = 1 To Nx
            result(i, j) = x(1, j)
                * y(i, 1)
        Next j
    Next i
    quiz5 = result
End Function
```

Setting **x** equal to the input array **xIn** (which is the range **B1:F1**) gives the following components $x(1,1) = 10$, $x(1,2) = 20$, $x(1,3) = 40$, $x(1,4) = 75$, and $x(1,5) = 100$; setting **y** equal to the input array **yIn** (which is the range **A2:A5**) gives $y(1,1) = 1$, $y(2,1) = 3$, $y(3,1) = 5$, and $y(4,1) = 10$. The nested for loops perform the following calculations:

For $i = 1$: $result(1,1) = x(1,1)*y(1,1) = 10 * 1 = 10$; $result(1,2) = x(1,2)*y(1,1) = 20 * 1 = 20$; $result(1,3) = x(1,3)*y(1,1) = 40 * 1 = 40$; $result(1,4) = x(1,4)*y(1,1) = 75 * 1 = 75$; $result(1,5) = x(1,5)*y(1,1) = 100 * 1 = 100$.

For $i = 2$: $result(2,1) = x(1,1)*y(2,1) = 10 * 3 = 30$; $result(2,2) = x(1,2)*y(2,1) = 20 * 3 = 60$; $result(2,3) = x(1,3)*y(2,1) = 40 * 3 = 120$; $result(2,4) = x(1,4)*y(2,1) = 75 * 3 = 225$; $result(2,5) = x(1,5)*y(2,1) = 100 * 3 = 300$

For $i = 3$: $result(3,1) = x(1,1)*y(3,1) = 10 * 5 = 50$; $result(3,2) = x(1,2)*y(3,1) = 20 * 5 = 100$; $result(3,3) = x(1,3)*y(3,1) = 40 * 5 = 200$; $result(3,4) = x(1,4)*y(3,1) = 75 * 5 = 375$; $result(3,5) = x(1,5)*y(3,1) = 100 * 5 = 500$.

For $i = 4$: $result(4,1) = x(1,1)*y(4,1) = 10 * 10 = 100$; $result(4,2) = x(1,2)*y(4,1) = 20 * 10 = 200$; $result(4,3) = x(1,3)*y(4,1) = 40 * 10 = 400$; $result(4,4) = x(1,4)*y(4,1) = 75 * 10 = 750$; $result(4,5) = x(1,5)*y(4,1) = 100 * 10 = 1000$.

The resulting worksheet is shown below:

	A	B	C	D	E	F
1		10	20	40	75	100
2	1	10	20	40	75	100
3	3	30	60	120	225	300
4	5	50	100	200	375	500
5	10	100	200	400	750	1000