

Multiplying by 9 Using Patterns



Unlike with other numbers, multiplying any *single-digit* number by 9 results in a recognizable pattern. For example:

$$2 \times 9 = \mathbf{18} \quad \mathbf{1} + \mathbf{8} = 9$$

$$3 \times 9 = \mathbf{27} \quad \mathbf{2} + \mathbf{7} = 9$$

$$4 \times 9 = \mathbf{36} \quad \mathbf{3} + \mathbf{6} = 9$$

$$5 \times 9 = \mathbf{45} \quad \mathbf{4} + \mathbf{5} = 9$$

You should notice that $2 \times 9 = 18$ and that adding together the two digits of the answer equals 9. In other words, $1 + 8 = 9$.

Fill out the rest of the chart by writing the correct number on the blank spaces.

$$6 \times 9 = \mathbf{54} \quad \mathbf{5} + \mathbf{4} = 9$$

$$7 \times 9 = \mathbf{63} \quad \underline{\mathbf{6}} + \underline{\mathbf{3}} = 9$$

$$8 \times 9 = \mathbf{72} \quad \underline{\mathbf{7}} + \underline{\mathbf{2}} = 9$$

$$9 \times 9 = \mathbf{81} \quad \underline{\mathbf{8}} + \underline{\mathbf{1}} = 9$$

Does this pattern work for 9×10 ? Yes or No?

Does it work for 9×11 ? Yes or No?