


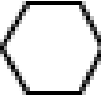

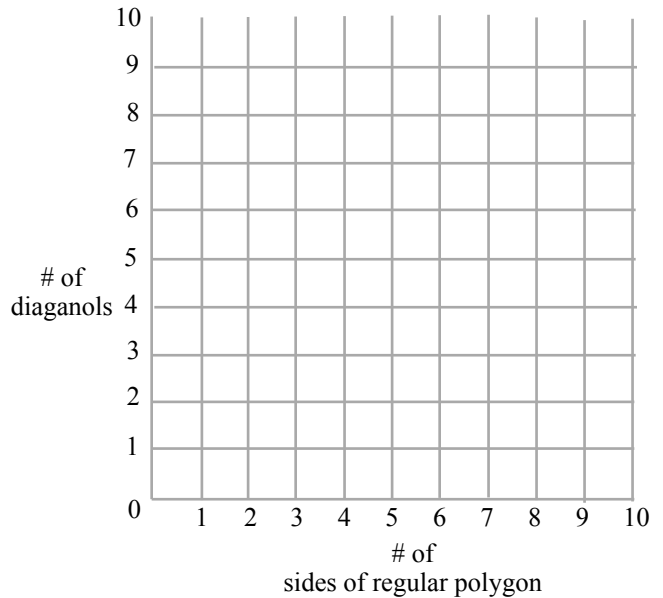


# COUNTDOWN CHALLENGE

## Diagonals

Draw the diagonals in the polygons below and complete the table. Use the information from the table to create a graph on the right.

Name	Picture	# of sides	# of diagonals
Triangle		3	0
			
			
			
			



You can use the following formula to calculate the # of diagonals in regular polygons. Test it yourself.

$n = \# \text{ of sides}$

$$\frac{(n - 1)(n - 2)}{2} - 1 = \# \text{ diagonals}$$

Triangle  $\frac{(3 - 1)(3 - 2)}{2} - 1 = 0$

Square  $\frac{(4 - 1)(4 - 2)}{2} - 1 = \underline{\quad}$

Pentagon  $\frac{(5 - ?)(? - 2)}{2} - 1 = \underline{\quad}$

Hexagon  $\frac{(? - 1)(? - ?)}{2} - 1 = \underline{\quad}$

Heptagon  $\frac{(? - ?)(? - ?)}{2} - 1 = \underline{\quad}$

Use the formula to calculate the # of diagonals in regular polygons that have the following # of sides.

21 sides  $\underline{\hspace{2cm}}$

31 sides  $\underline{\hspace{2cm}}$

41 sides  $\underline{\hspace{2cm}}$

53 sides  $\underline{\hspace{2cm}}$

65 sides  $\underline{\hspace{2cm}}$

77 sides  $\underline{\hspace{2cm}}$