MathFLIX CHALLENGE
Diagonals

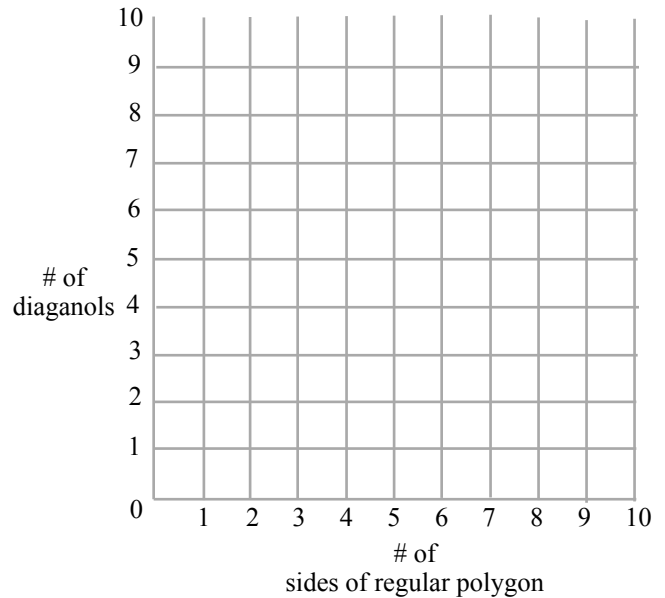*Draw the diagonals in the polygons below and complete the table. Use the information from the table to create a graph on the right.*

Name	Picture	# of sides	# of diagonals
Triangle	△	3	0
	▢		
	⬠		
	⬡		
	⯃		

# of diaganols

# of sides of regular polygon

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

n = # of sides

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

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

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

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

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

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

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

21 sides _____

31 sides _____

41 sides _____

53 sides _____

65 sides _____

77 sides _____