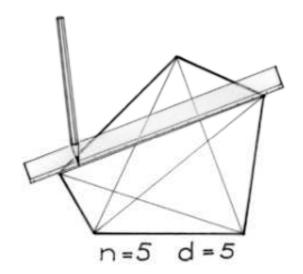# Les polygones d'Antigone

After she had drawn a few diagrams, Antigone noticed that a triangle has no diagonals, that a quadrilateral has two and that a pentagon has five.
She tries to work out how many diagonals the polygons with 6, 7 and 8 vertices would have.

n = 5   d = 5

She thinks she has found the formula that gives the number of diagonals for a polygon with n vertices:

$$d = \frac{n(n-3)}{2}$$

How many diagonals does a polygon with 6,7 or 8 vertices have?
Show that Antigone's formula is correct.
Can a polygon have 100 diagonals? Explain your answer.