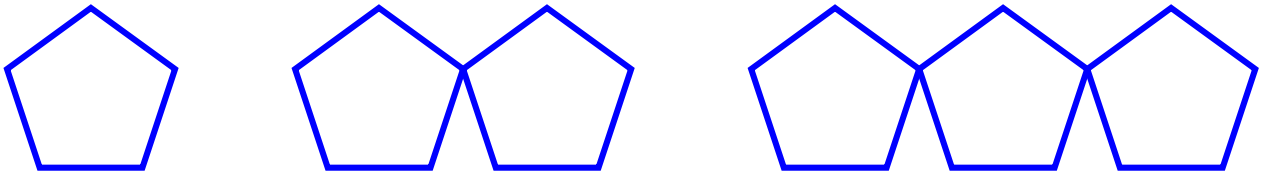
Number patterns



1 Pentagon 2 Pentagons 3 Pentagons

Number of pentagons (P)	**1**	**2**	**3**	**4**	**5**
Number of lines (L)					

(a) Count the straight lines needed to make one (1) pentagon, two (2) pentagons, three (3) pentagons, …

(b) Write the results in the table.

(c) Study the pattern and write the relationship or rule connecting the number of pentagons and the number of lines that form the pattern. Start with, 'The number of lines needed to draw the pentagon pattern is …'

(d) Use your rule to find the number of lines needed to draw 63 pentagons.

Solution

Number of pentagons (P)	**1**	**2**	**3**	**4**	**5**
Number of lines (L)	**5**	**10**	**15**	**20**	**25**

Rule: *The number of lines needed to draw the pentagon pattern is the number of pentagons multiplied by 5*.

$$L = P \times 5$$

For 63 pentagons: $P = 63$

So: number of lines $= 63 \times 5$

$= 315$ lines

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