

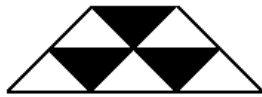
Black and white triangle patterns

This task is about continuing a spatial pattern and writing a rule.

Mani made these shapes with some black and white triangles.



Shape 1



Shape 2



Shape 3

This table shows the numbers of each colour of triangle Mani used when he made the first five shapes.

Shape number (n)	1	2	3	4	5
i) Number of black triangles (b)	1	3	5	7	9
ii) Number of white triangles (w)	3	5	7	9	11
iii) Total number of triangles (t)	4	8	12	16	20

a) Mani made bigger and bigger shapes.

To make shape 10, how many triangles did he use that were coloured

i) black?

ii) white?

b) Complete this rule relating the total number of triangles (t) with the shape number (n).

$t =$

c) Complete this rule relating the number of white triangles (w) with the shape number (n)

$w =$

d) Complete this rule relating the number of black triangles (b) with the shape number (n)

$b =$

e) Which shape number would have 35 black triangles?