# A Maths Question, PSLE 2023

The triangle shown in Figure 1 is an isosceles triangle where AC = BC. Some of these triangles were placed in a rectangle in Figure 2. 24 pins were used to pin up the all the triangles.

a) What is the length of XY?

b) What is the area covered by all the triangles?

Figure 1

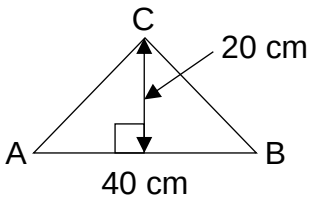
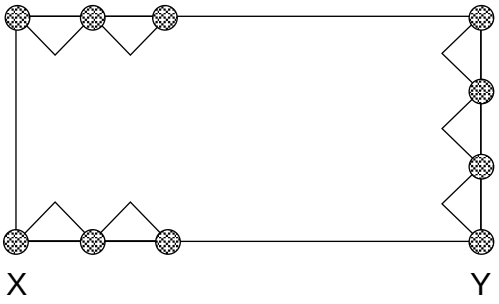


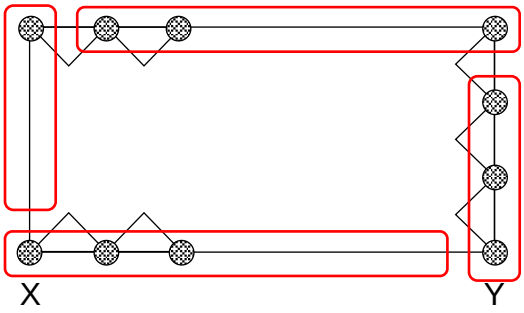

Figure 2




<< Square Arrangement Maths >>

<Writing>

If we divide 24 pins into 4 groups as shown on the right,




$3 \times 2 = 6$ (pins)

$24 - 6 = 18$ (pins)

$18 \div 2 = 9$ (pins)

This 9 is equal to the number of spacing between 2 pins on side XY. Hence

$40 \times 9 = 360$ (cm) → a), Length of XY

Number of spacing = Number of triangles

$\frac{1}{2} \times 40 \times 20 = 400$ ($cm^2$) → Area of 1 triangle

$400 \times 24 = 9\,600$ ($cm^2$) → b), Area covered by all the triangles

Answer a) 360 cm b) 9 600 $cm^2$

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