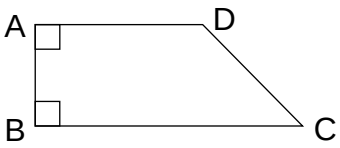
A Maths Question, PSLE 2023

The figure below shows a trapezium with a perimeter of 96 cm.



a) Figure 1 is made up of 3 such trapeziums and it has a perimeter of 204 cm. Find the length of AB.
b) Figure 2 is also made up of 4 such trapeziums. These trapeziums form 2 identical rectangles. The total area of these rectangles is 1 932 cm^2. How long is AD?

Figure 1

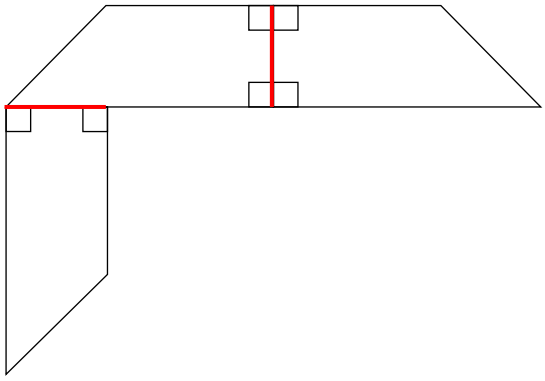
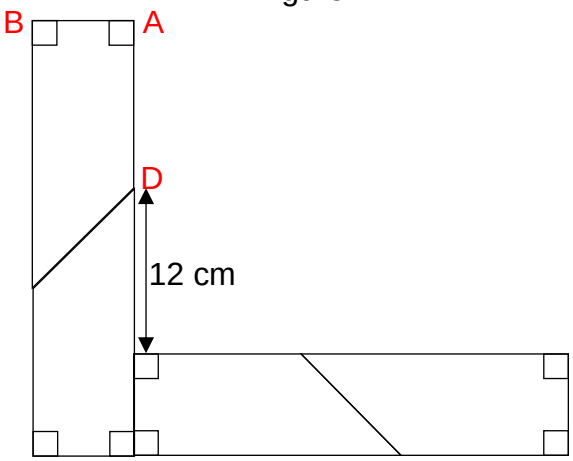


Figure 2



<< Area & Perimeter >>

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Look at the sides which contact the side of the next trapezium.
There are 4 such AB as shown in red in Figure 1.

Perimeter of 3 trapeziums – Perimeter of Figure 1 = 4 AB

96 × 3 = 288 (cm)
288 – 204 = 84 (cm) → Length of 4 AB
84 ÷ 4 = 21 (cm) → a) AB

1 932 ÷ 2 = 966 (cm^2) → Area of 1 rectangle
Since AB = 21 cm,
966 ÷ 21 = 46 (cm) → Length of the rectangle
46 – 21 – 12 = 13 (cm) → b) AD

Answer a) 21 cm b) 13 cm