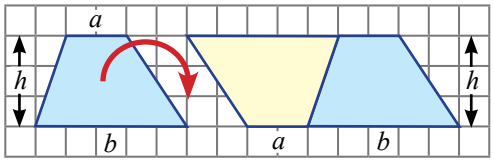
The Trapezium

The area of a parallelogram = base × perpendicular height

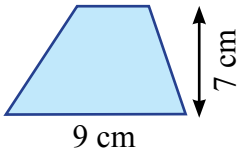
Take a trapezium, rotate it through 180° and place it next to itself.
The two trapeziums create a parallelogram with a base of $a + b$.
The two trapeziums create a parallelogram with an area $(a + b) \times h$.
One trapezium is half this.



The area of a trapezium = $\frac{1}{2}(a + b)h$ or $\frac{(a + b)h}{2}$ or $\frac{h}{2}(a + b)$

A. Find the area of the following trapeziums. (Diagrams not to scale).

1).



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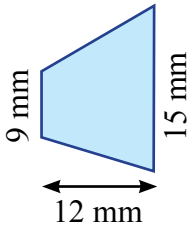

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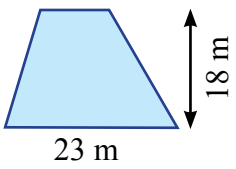

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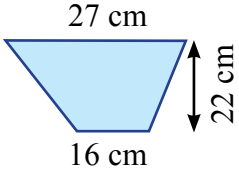

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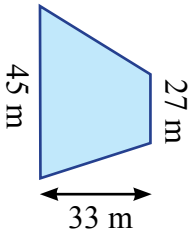


Example: Find the perpendicular height of the trapezium.

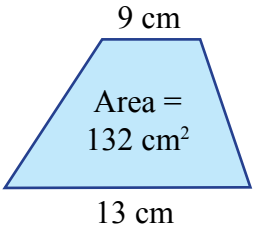
Area of trapezium = $\frac{1}{2}(a + b)h$

132 = $\frac{1}{2}(9 + 13)h$

132 = $\frac{1}{2}(22)\,h$

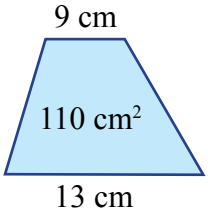
132 = $11 \times h$ (Divide both sides by 11)

h = 12 cm



B. Find the perpendicular heights of the trapeziums. (Diagrams not to scale).
The area of each trapezium is shown inside the shape.

1).



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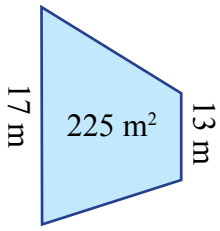

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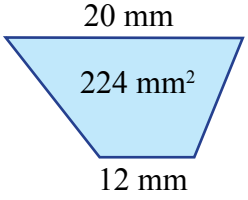

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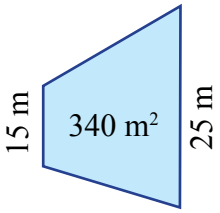

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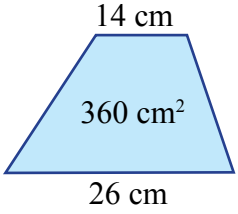

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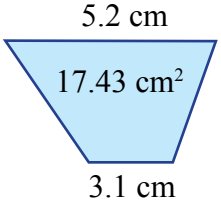

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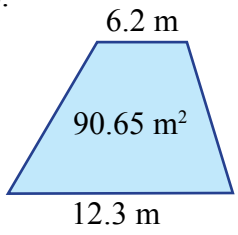

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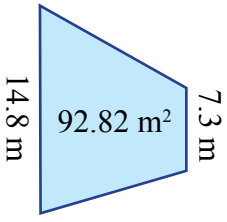

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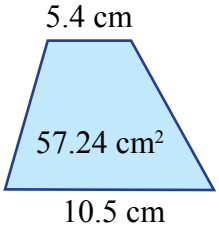

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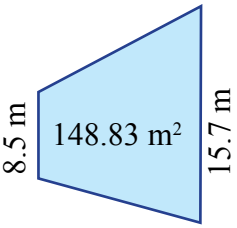

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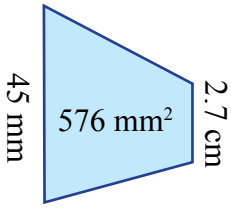

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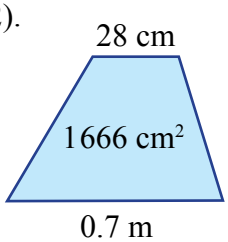

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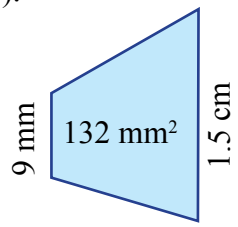

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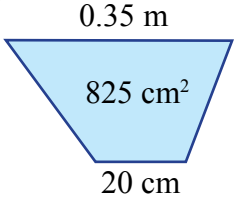

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