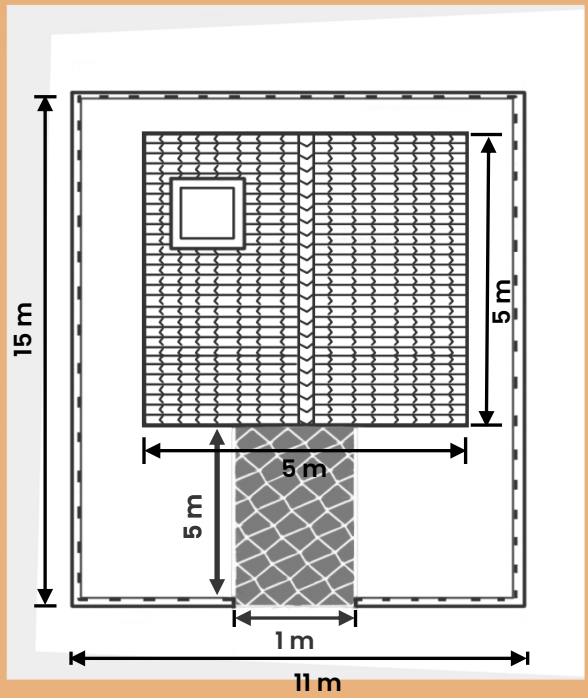

Area of
Quadrilaterals

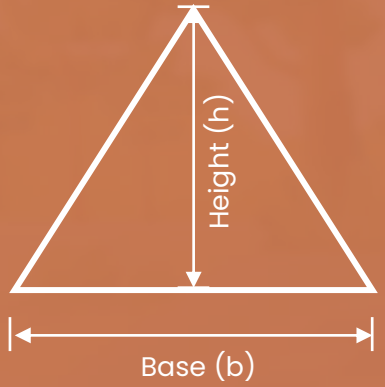

Hey Alex! I'm thinking of renovating this hut.
We should develop a garden around the plot.

We need a rough idea of the total area available for gardening.

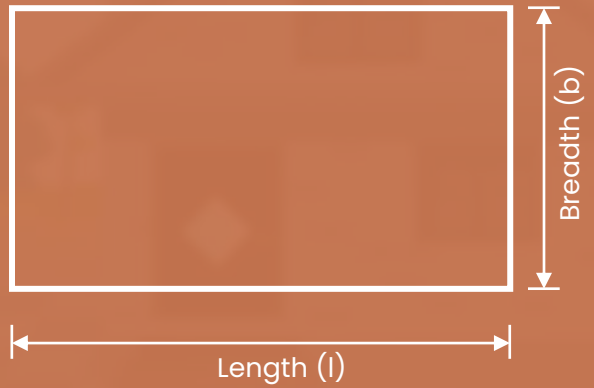
Dad, we have this blueprint of the plot.



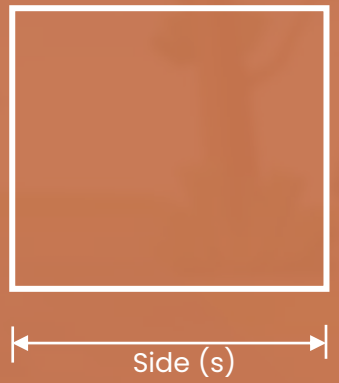
# Area of the Plane Figures




Area of a triangle = $\frac{1}{2} \times b \times h$

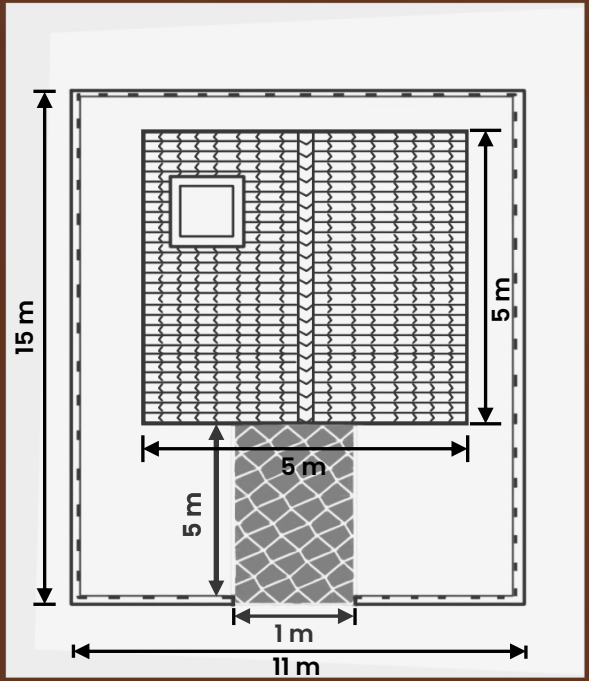


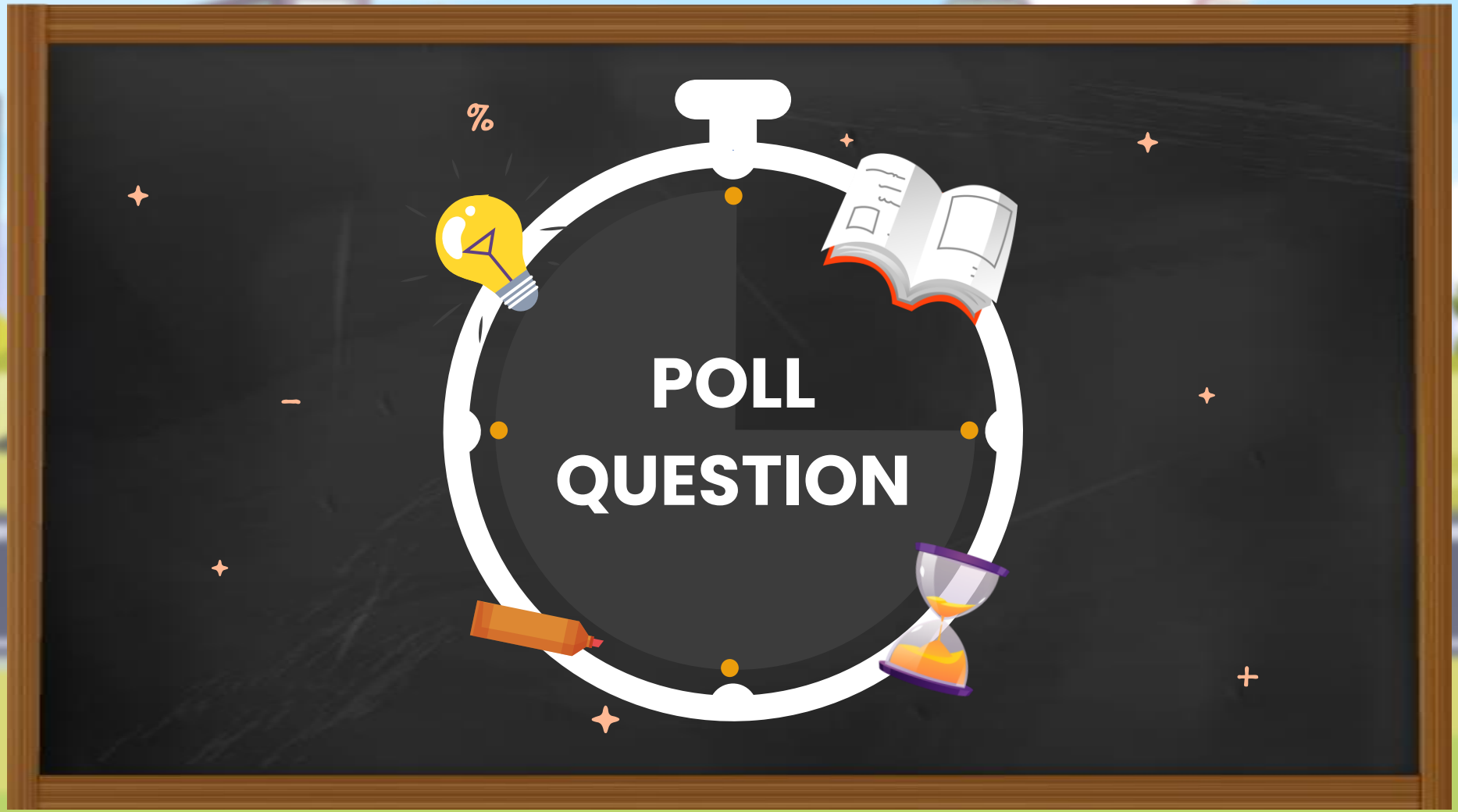

Area of a rectangle = $l \times b$




Area of a square = $s^2$

# Area for gardening:




POLL
QUESTION

If the sides of a rectangle are in the ratio of 1 : 3 and its perimeter is 16 cm, then what will be its area?

A $3\ cm^2$

B $4\ cm^2$

C $12\ cm^2$

D $24\ cm^2$

If the sides of a rectangle are in the ratio of 1 : 3 and its perimeter is 16 cm, then what will be its area?

A $3\ cm^2$

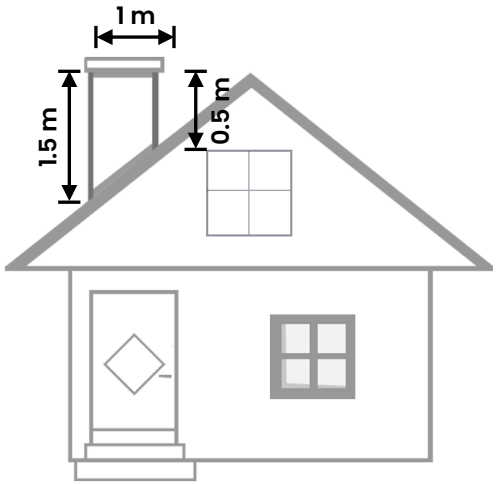
B $4\ cm^2$

C $12\ cm^2$

D $24\ cm^2$

I think we should paint this hut. Let us find the area of the hut so that we can buy enough paint.

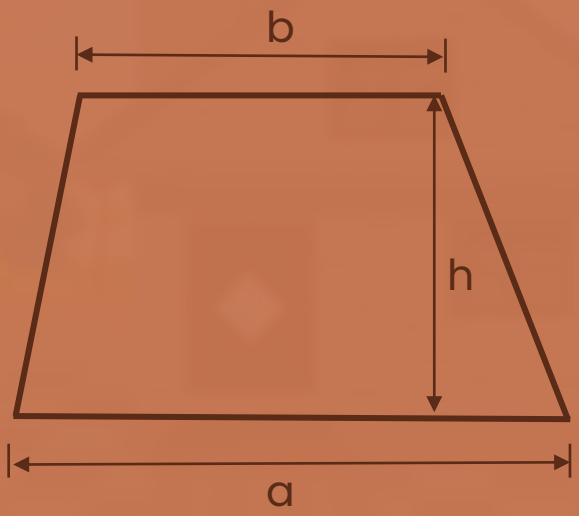
But how can we find the area of that trapezium-shaped front side of the chimney?



# Area of a Trapezium

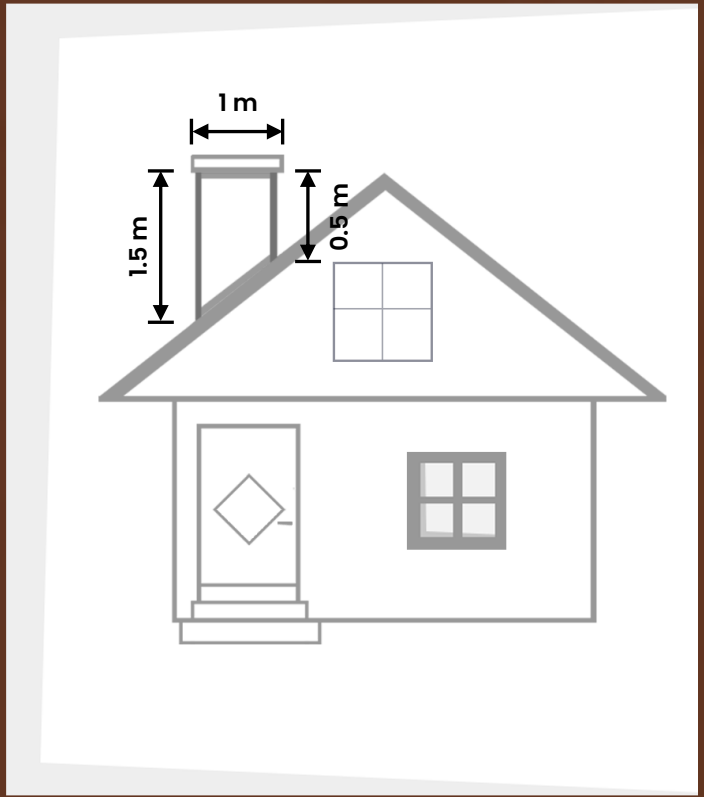
| | |
|---|---|
| Grade: | 08 KL |
| Chapter: | Area of Quadrilaterals |
| BTLA: | Area of Trapezium |
| Timings: | 00:00:14 – 00:02:32 |
| Start: | Let’s see if we’ve a trapezium.... |
| End: | ...height into sum of parallel sides. |
| Duration: | 00:02:18 |
| Link | - |

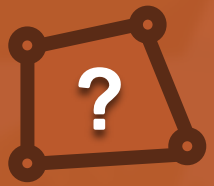
# Area of a Trapezium



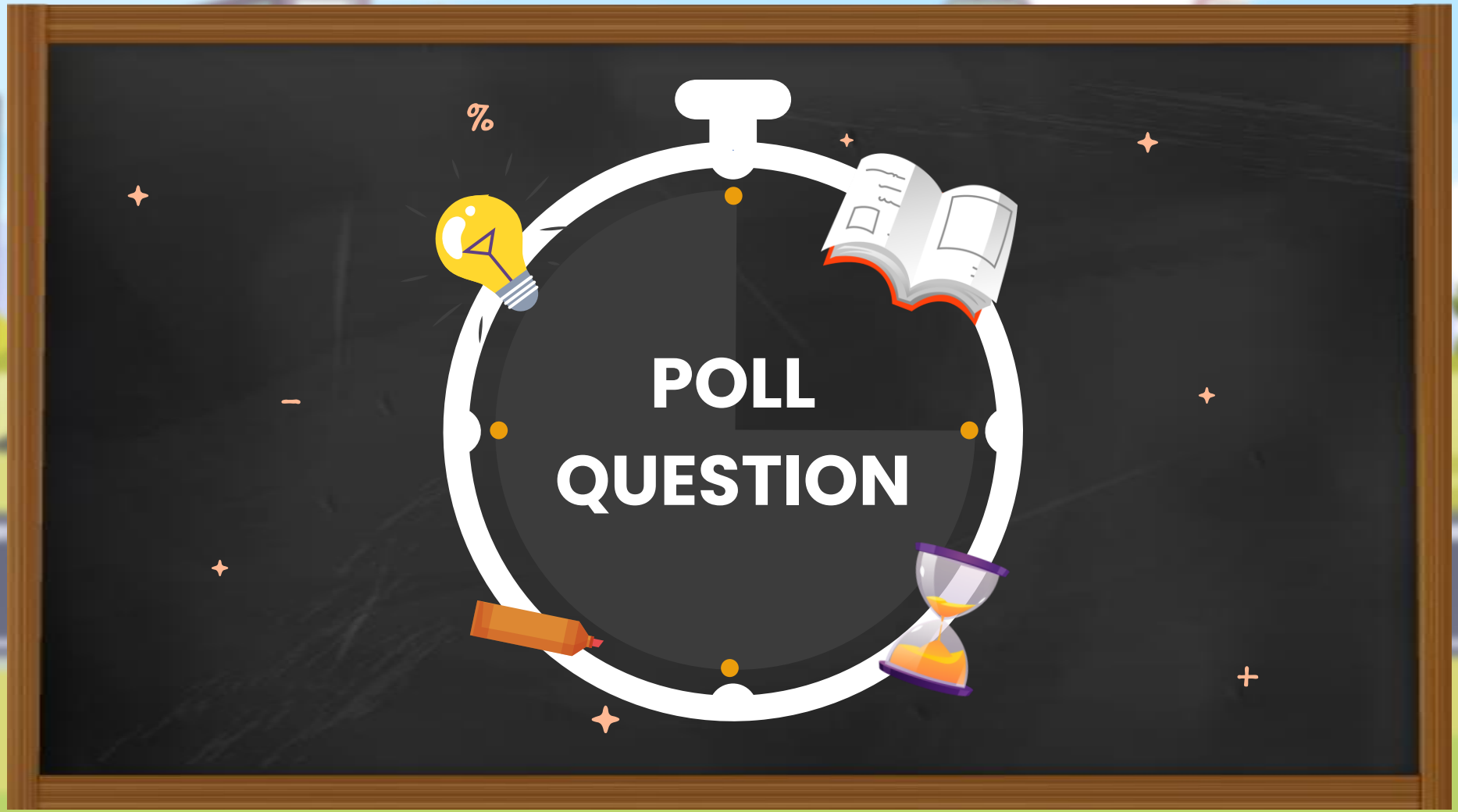

$$\text{Area} = \frac{1}{2} \times (a + b) \times h$$

# Area of the front of the chimney:






The lengths of parallel sides of a trapezium are 7 cm and 10 cm, and the distance between them is 8 cm. Find its area.


POLL
QUESTION

If the area of a trapezium is given as 48 $cm^2$ and the sum of the lengths of its parallel sides is 12 cm, then what will be the distance between the parallel sides?

A 8 cm

B 4 cm

C 2 cm

D 6 cm

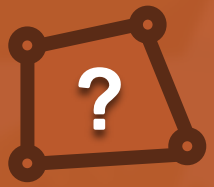
If the area of a trapezium is given as 48 $cm^2$ and the sum of the lengths of its parallel sides is 12 cm, then what will be the distance between the parallel sides?

A 8 cm

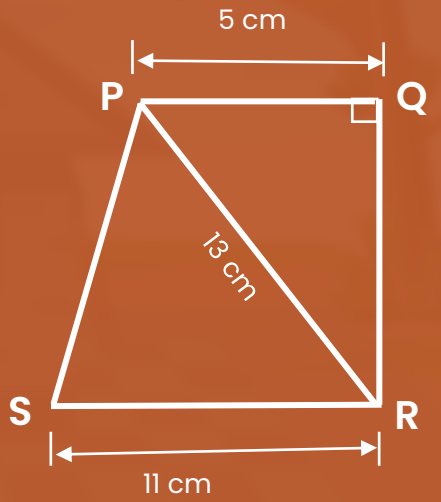
B 4 cm

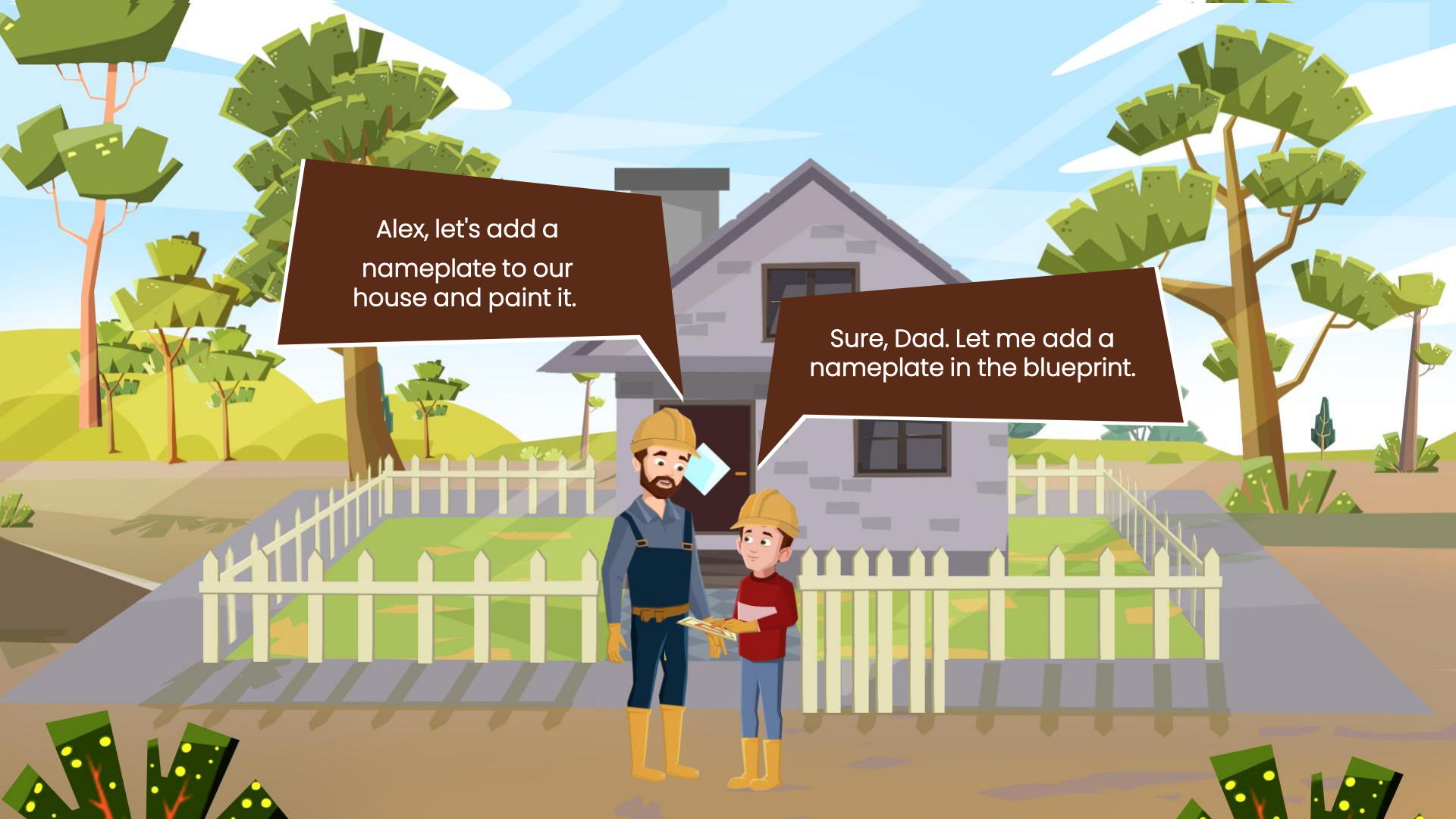
C 2 cm

D 6 cm




# Calculate the area of the trapezium PQRS shown in the figure below.




Alex, let's add a nameplate to our house and paint it.
Sure, Dad. Let me add a nameplate in the blueprint.

That looks great, Alex! It has the shape of an isosceles trapezium.

Yes Dad! But how can I find the area of an isosceles trapezium.

Alex's House

# Rectangle to Isosceles Trapezium

Rectangle

Replace the triangle

Parallelogram

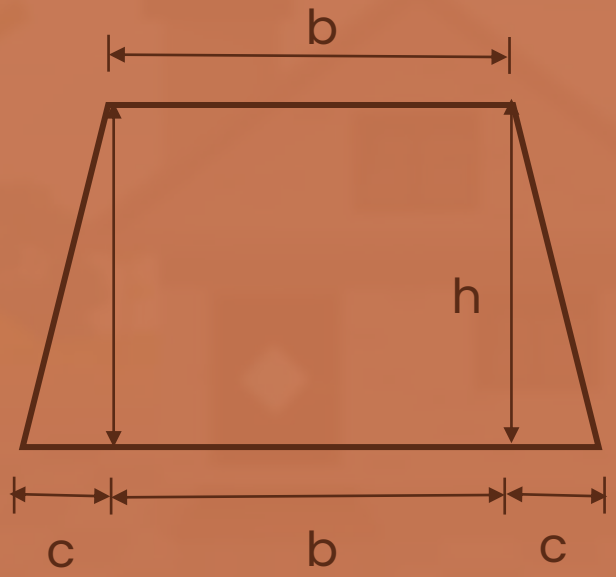
Flip the triangle

Isosceles trapezium

# Area of an Isosceles Trapezium

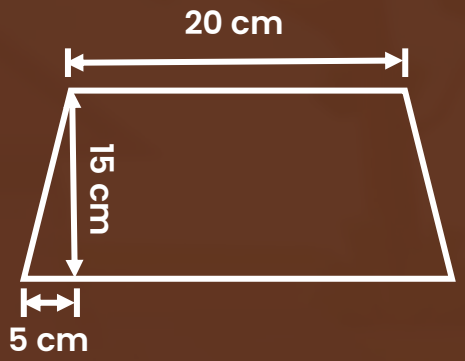
| | |
|---|---|
| Grade: | 08 KL |
| Chapter: | Area of Quadrilaterals |
| BTLA: | Area of Trapezium |
| Timings: | 00:05:59 – 00:08:14 |
| Start: | Let’s say we have an isosceles trapezium.... |
| End: | ...moving a triangle from the trapezium. |
| Duration: | 00:02:15 |
| Link | - |

# Area of an Isosceles Trapezium

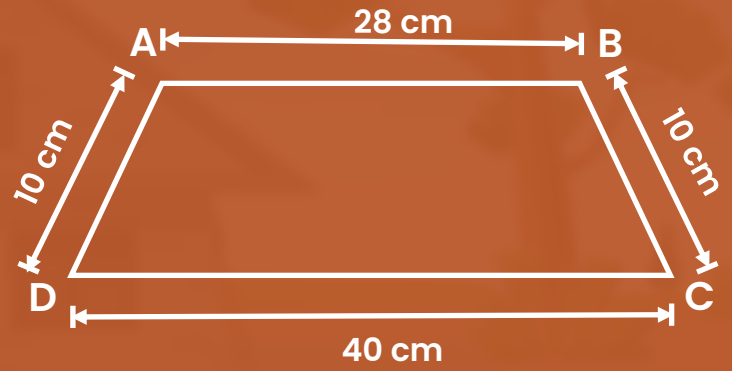


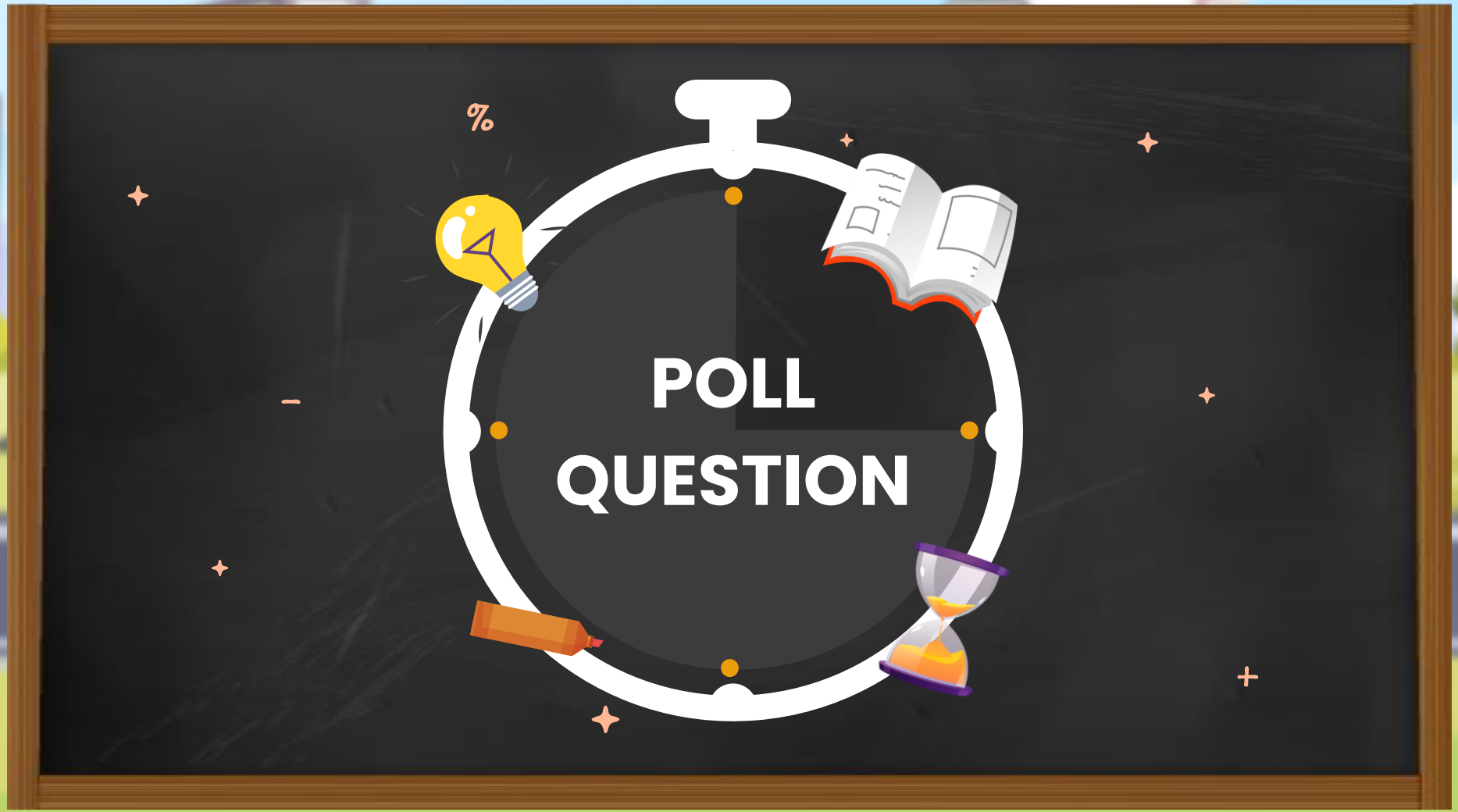

**Area =** $= \frac{1}{2} \times (b + c + b + c) \times h = (b + c) \times h$

# Area of the nameplate:



Evaluate the area of the given trapezium ABCD in which AB || CD.




POLL
QUESTION

The lengths of parallel sides of an isosceles trapezium are 10 cm and 4 cm, respectively. If the area is 28 $cm^2$, what is the length of the non-parallel side?

A 2 cm

B 4 cm

C 5 cm

D 10 cm

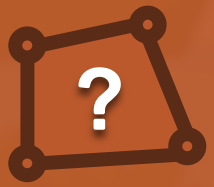
The lengths of parallel sides of an isosceles trapezium are 10 cm and 4 cm, respectively. If the area is 28 $cm^2$, what is the length of the non-parallel side?

A 2 cm

B 4 cm

C 5 cm

D 10 cm

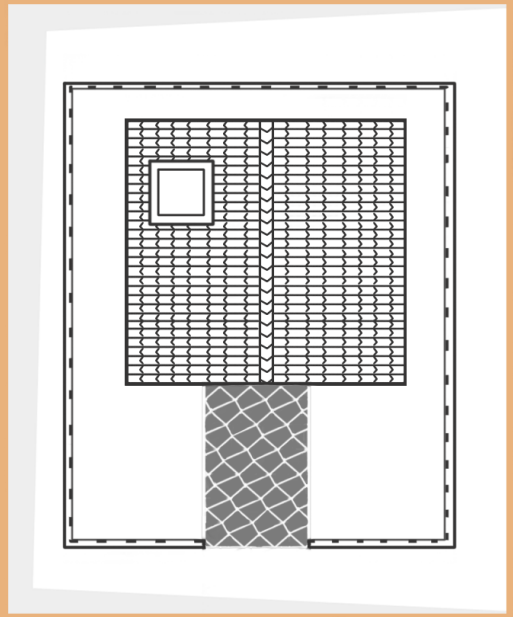



The perimeter of a trapezium is 56 cm. Find the area of the trapezium if the lengths of the parallel sides are in the ratio of 1 : 2, and the length of each non-parallel side is 13 cm.

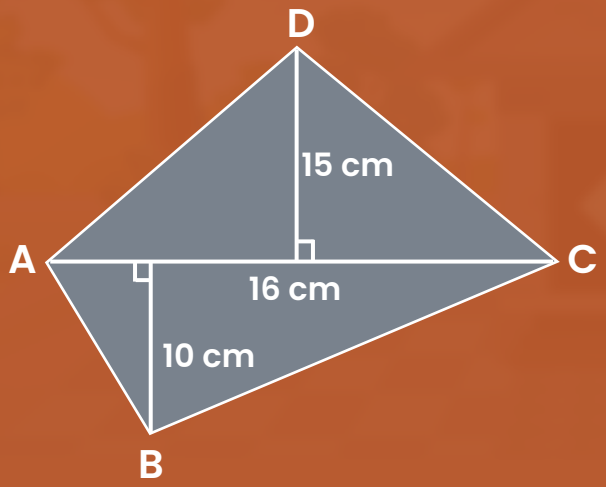
# Doubt Board

I think we should paint these quadrilateral-shaped tiles.

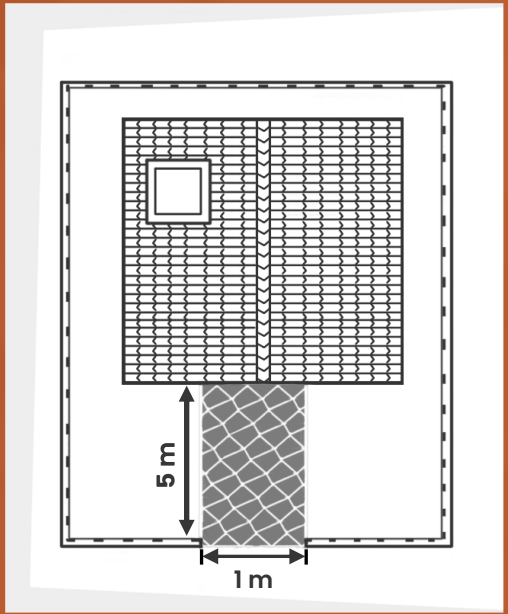
But how can we find the area of a random quadrilateral?



Alex wants to paint the quadrilateral-shaped tiles as shown in the sketch. Find the number of tiles Alex has to paint. (If required, he can cut the tiles into smaller pieces to fill up the corners.)



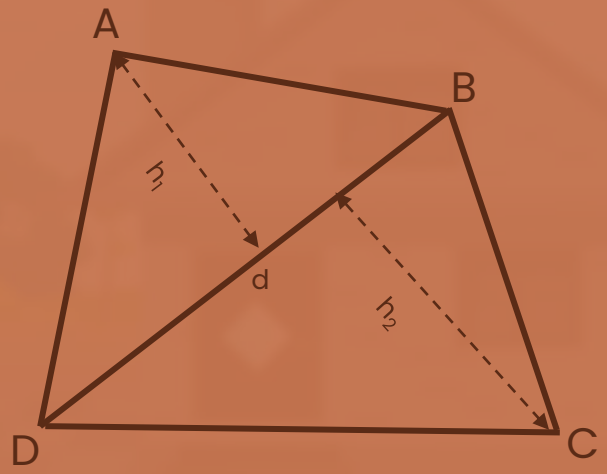

Tile



# Area of General Quadrilateral

| | |
|---|---|
| Grade: | 08 KL |
| Chapter: | Area of Quadrilaterals |
| BTLA: | Area of quadrilateral |
| Timings: | 00:00:07 – 00:01:54 |
| Start: | Let’s say we’ve a generic... |
| End: | ...So that will be able to calculate the area that's it. |
| Duration: | 00:01:47 |
| Link | - |

# Area of a General Quadrilateral

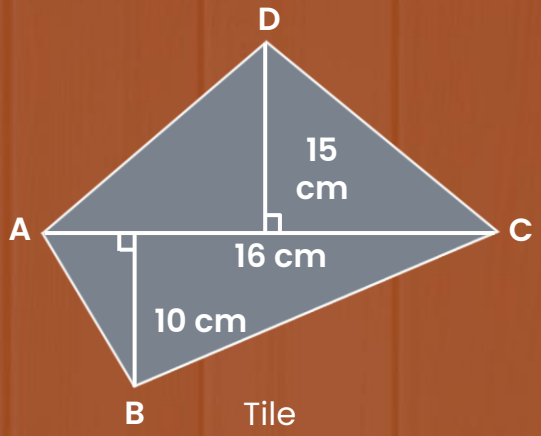



Area =

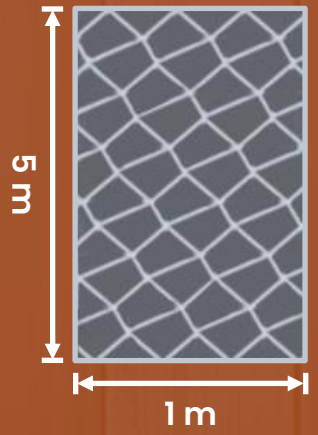
Area of the tile:

Area of the path:

Number of tiles required:

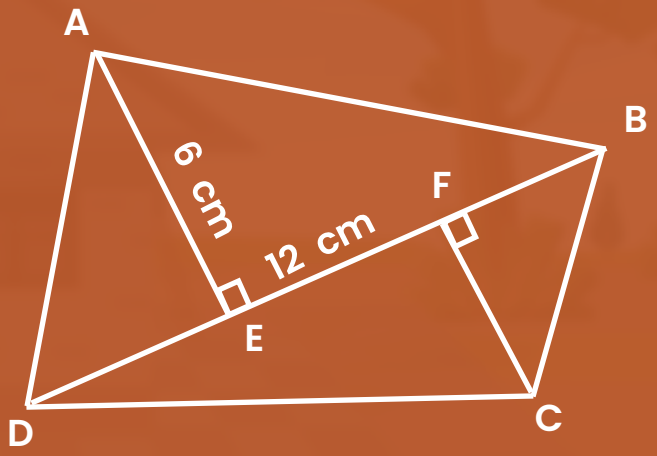


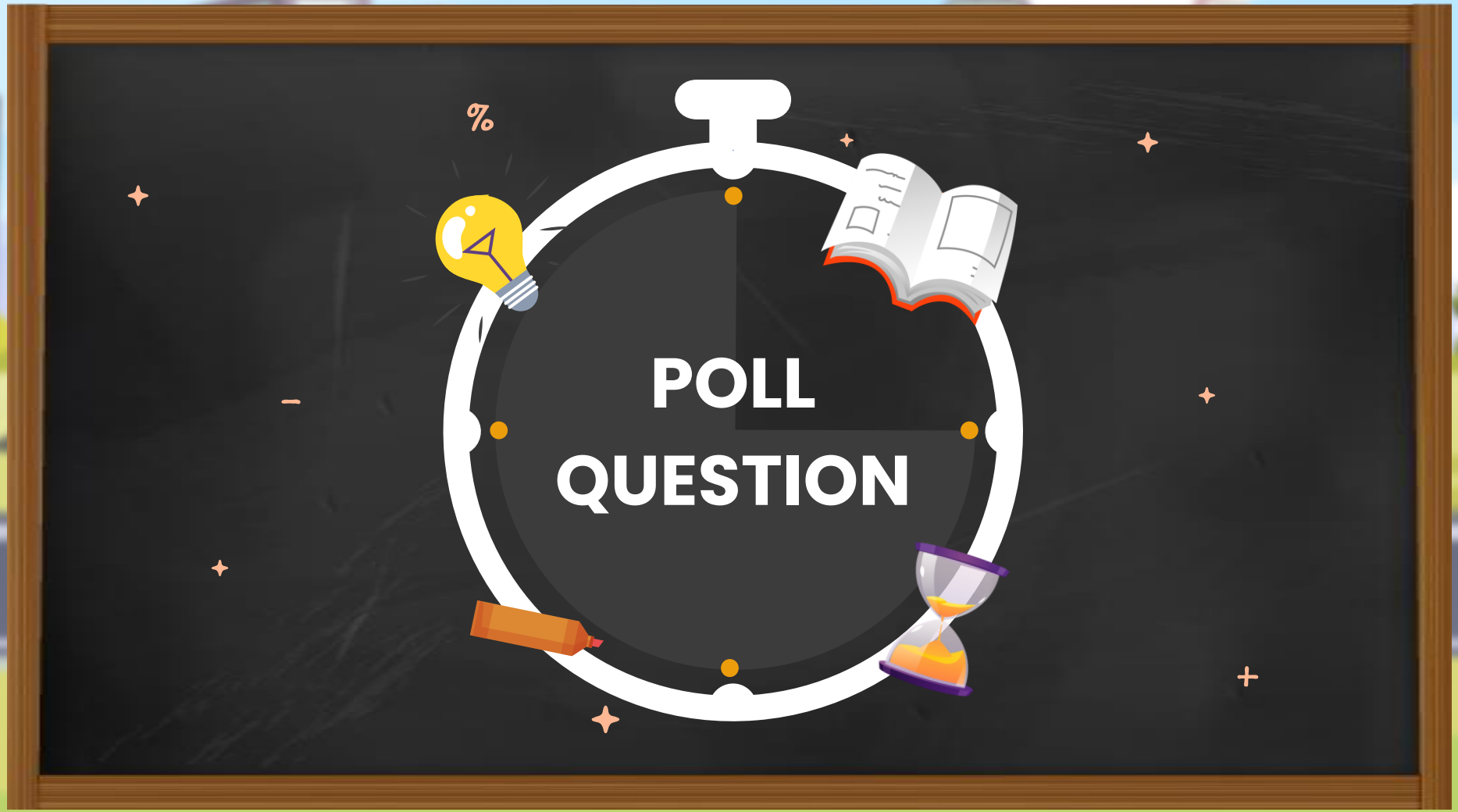

Tile



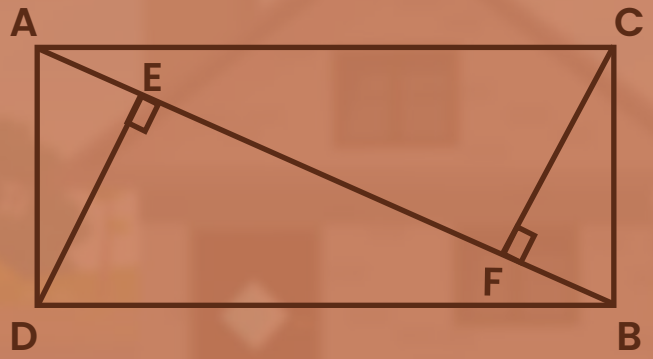

Path for tiling

In a quadrilateral ABCD, the length of the diagonal BD = 12 cm and the length of AE, the line perpendicular to BD, is 6 cm. If the area of the quadrilateral is 60 $cm^2$, find the length of the perpendicular CF.




POLL
QUESTION

The area of a quadrilateral ADBC is 1500 $m^2$.
Calculate the length of the diagonal AB
if the lengths of perpendiculars DE and CF are 25 cm each.



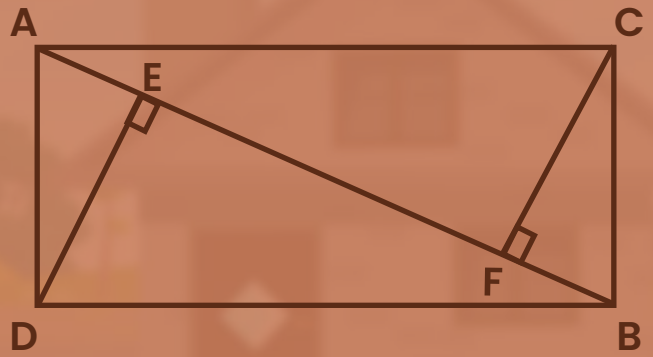

A 30 m

B 90 m

C 60 m

D 120 m

The area of a quadrilateral ADBC is 1500 $m^2$.
Calculate the length of the diagonal AB
if the lengths of perpendiculars DE and CF are 25 cm each.



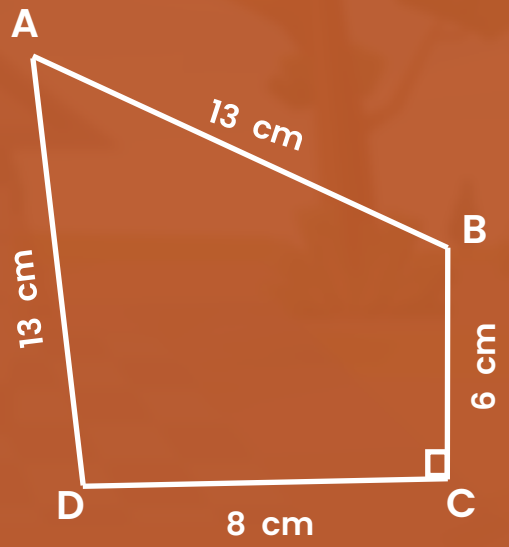

A 30 m

B 90 m

C 60 m

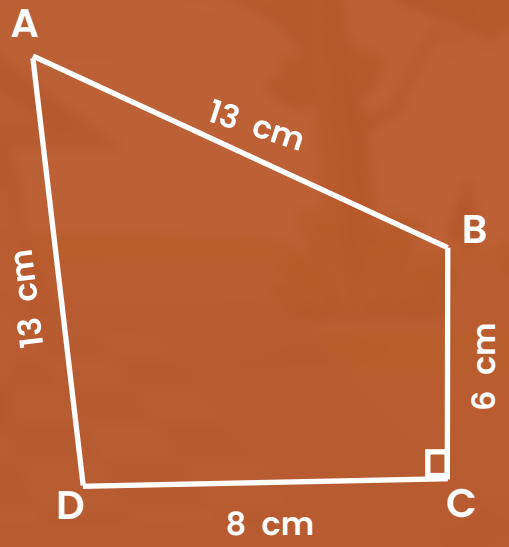
D 120 m

Calculate the area of the quadrilateral ABCD.



# Calculate the area of the quadrilateral ABCD.

## Diagonal BD:



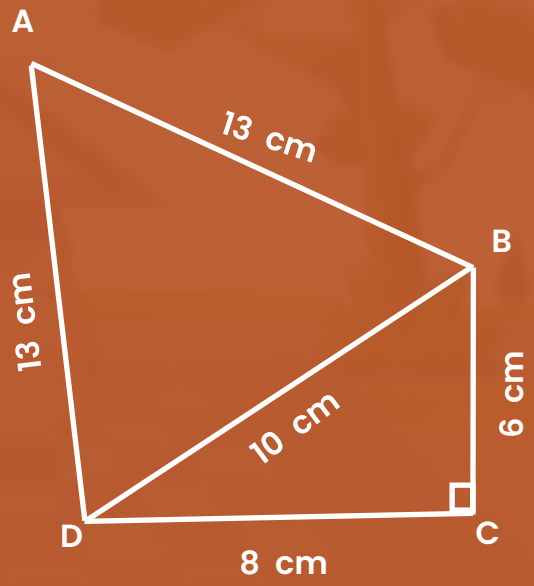
# Calculate the area of the quadrilateral ABCD.

## Diagonal BD:

**ΔBCD is a right-angled triangle.**

**BD = 10 cm**

## Perpendicular AE:



# Calculate the area of the quadrilateral ABCD.

## Diagonal BD:

**ΔBCD is a right-angled triangle.**

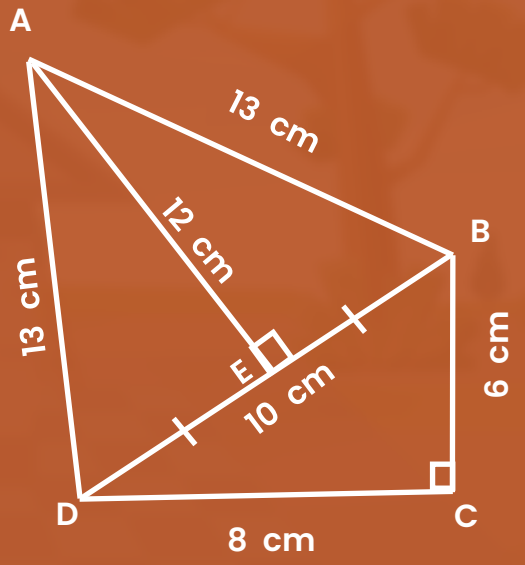
**BD = 10 cm**

## Perpendicular AE:

**ΔABD is an isosceles triangle.**

**AE = 12 cm**

## Area of quadrilateral ABCD:




We are finally done with the renovations. The the hut looks great now.
Alex's House

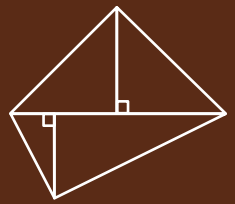
# Doubt Board

# Summary

Area of a Trapezium

Area of an Isosceles Trapezium

Area of a General Quadrilateral




END OF
SESSION