

Perimeter and Area

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Expected Learning Outcomes

- ☐ To understand the concept of perimeter and area.
 - ☐ To calculate the perimeter and area of given figures.
 - ☐ To convert various units
 - ☐ To apply the above concepts to solve a given problem
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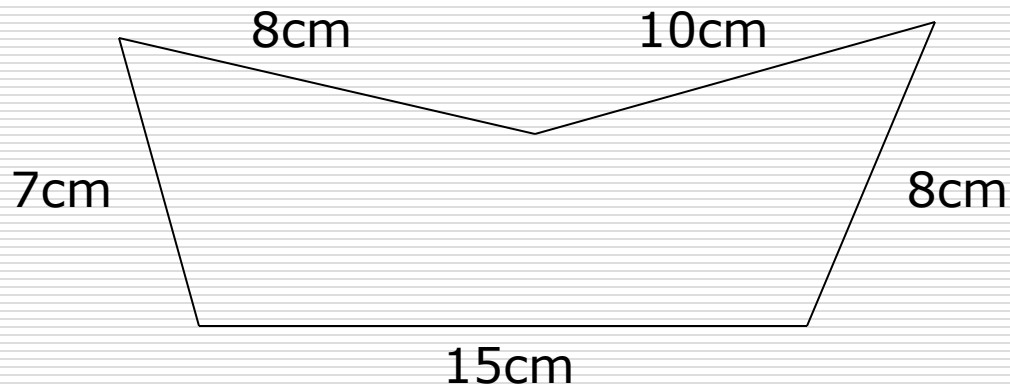


When your family puts up a new fence around your home, how will they know how much fencing they need?

PERIMETER

Perimeter

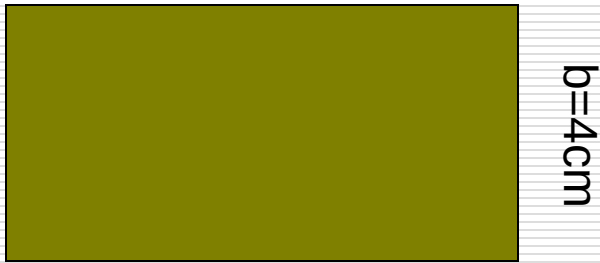
- The perimeter of a closed plane figure is the length of its boundary.



$$\begin{aligned}\text{Perimeter} &= 15 + 8 + 10 + 8 + 7 \\ &= 48\text{cm}\end{aligned}$$

Perimeter

□ Rectangle

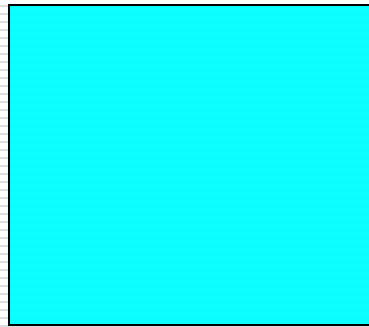


$L = 8\text{cm}$

$$P = 8 + 5 + 8 + 5$$

$$\begin{aligned} P &= l + b + l + b \\ &= 2(l + b) \end{aligned}$$

□ Square

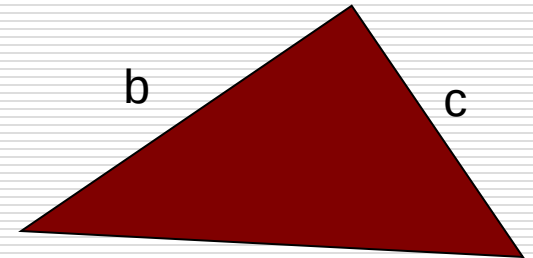


$L = 6\text{cm}$

$$P = 6 + 6 + 6 + 6$$

$$\begin{aligned} P &= l + l + l + l \\ &= 4l \text{ or } 4s \end{aligned}$$

□ Triangles



a

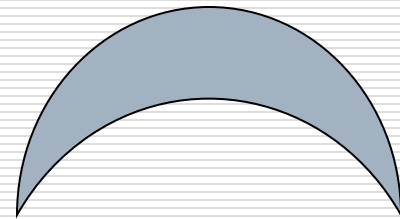
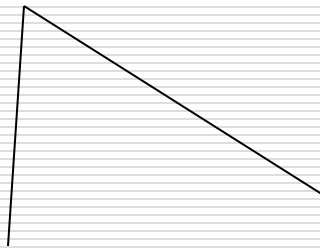
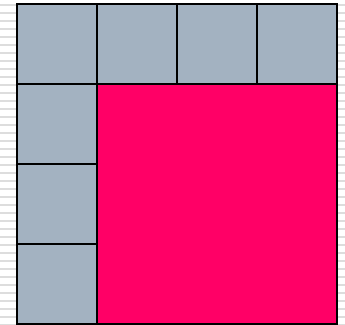
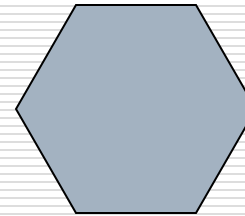
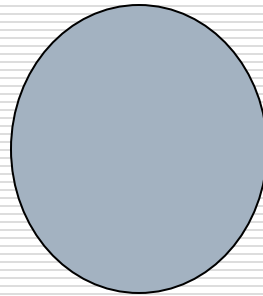
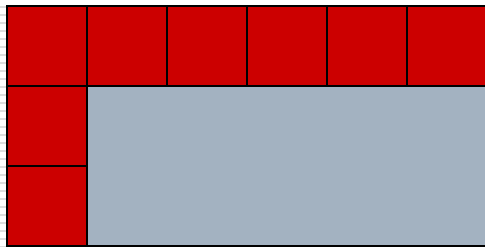
$$P = a + b + c$$



If your parents want to put new carpet in your room, how will they know how much carpet to buy?

AREA

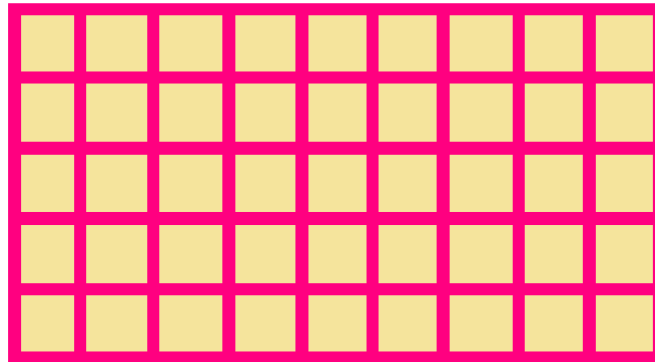
Area



- Area is the space within the boundary of a figure.
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Area

The area of a figure is the number of square units that cover the surface of the closed figure.



45 square units

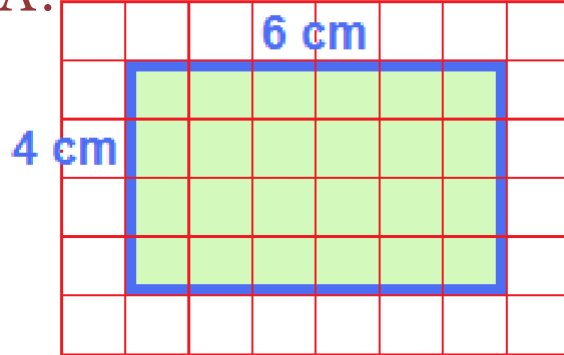
- ❑ For metric units, we say “units squared”.
Ex: centimeters squared or cm^2
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- ❑ For U.S. Customary, we say “square units” Ex: square inches or sq. in.
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Find the area of the rectangles using the formula

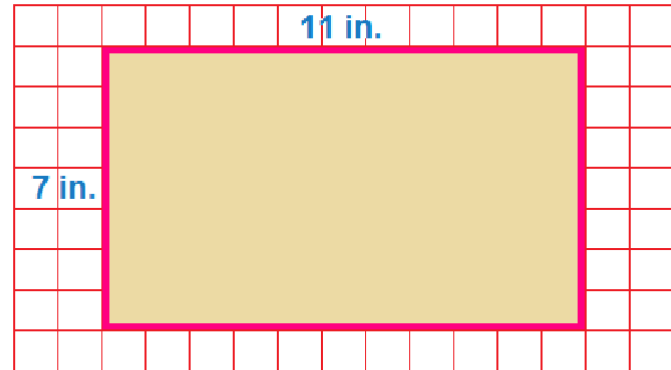
$$A = l \times b$$

A.



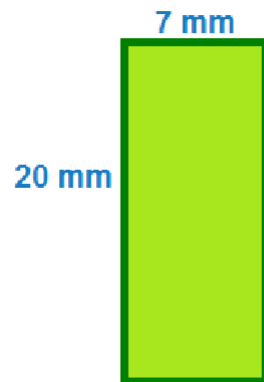
$$A = 24 \text{ cm}^2$$

B.



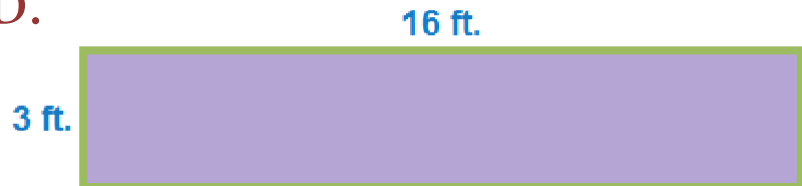
$$A = 77 \text{ sq. in.}$$

C.



$$A = 140 \text{ mm}^2$$

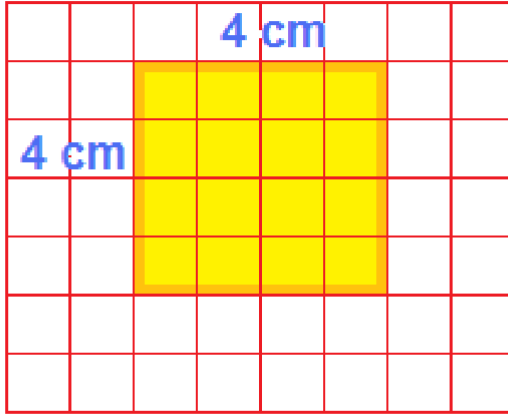
D.



$$A = 48 \text{ sq. ft.}$$

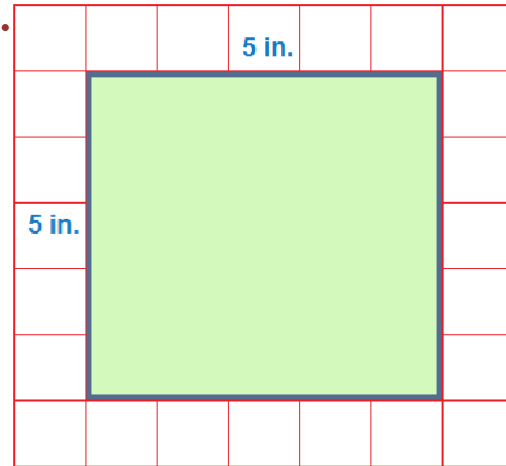
Find the area of the squares using the formula $A = \text{side} * \text{side} / s^2$

A.



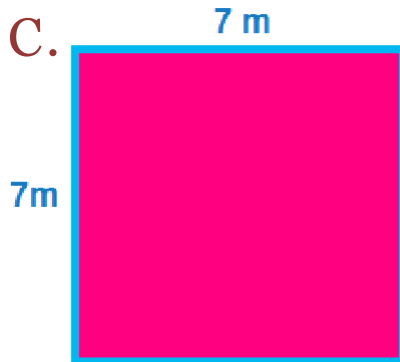
$$A = 16 \text{ cm}^2$$

B.



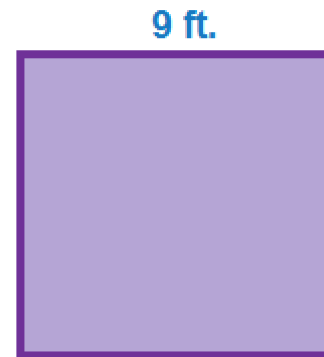
$$A = 25 \text{ sq. in.}$$

C.



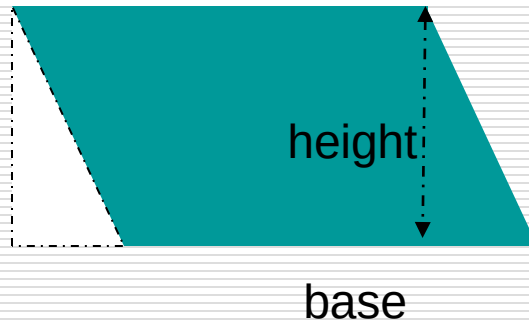
$$A = 49 \text{ m}^2$$

D.



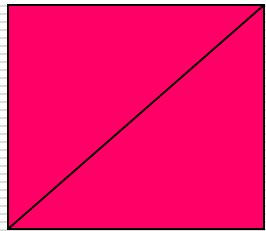
$$A = 81 \text{ sq. ft.}$$

Area of parallelogram

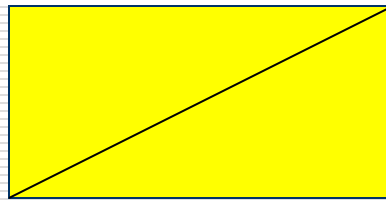


- Area of parallelogram = base x height
-

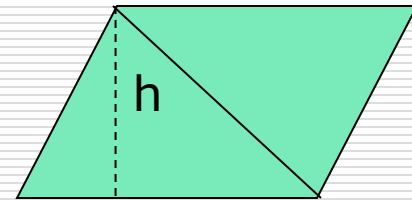
Area of a triangle



b



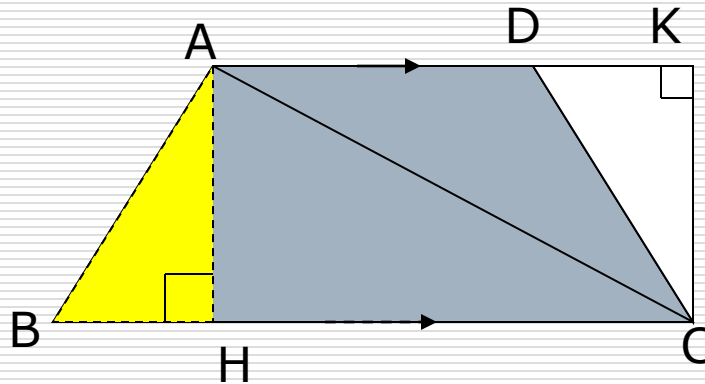
b



b

□ Area = $\frac{1}{2}$ x base x height

Area of trapezium



- Area of trapezium ABCD
 - = area of $\triangle ABC$ + area of $\triangle ACD$
 - = $(\frac{1}{2} \times BC \times AH) + (\frac{1}{2} \times AD \times CK)$
 - = $\frac{1}{2} \times AH \times (BC + AD)$
 - = $\frac{1}{2} \times \text{height} \times \text{sum of parallel sides}$
-

Conversion of Units

King Henry

King Henry Died Unexpectedly Drinking Chocolate Milk



Kilo 1,000	Hecto 100	Deka 10	Unit Meter Liter Gram 1	Deci .1	Centi .01	Milli .001
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→
largest to smallest = multiply

←
smallest to largest = divide

Applications

☐ Convert the following:

☐ (i) 50 cm into mm

☐ (ii) 10 m² in cm²

We need to find the areas of such pathways or borders when we want to find the cost of making them.

EXAMPLE 20 A rectangular park is 45 m long and 30 m wide. A path 2.5 m wide is constructed outside the park. Find the area of the path.

SOLUTION Let ABCD represent the rectangular park and the shaded region represent the path 2.5 m wide.

To find the area of the path, we need to find (Area of rectangle PQRS – Area of rectangle ABCD).

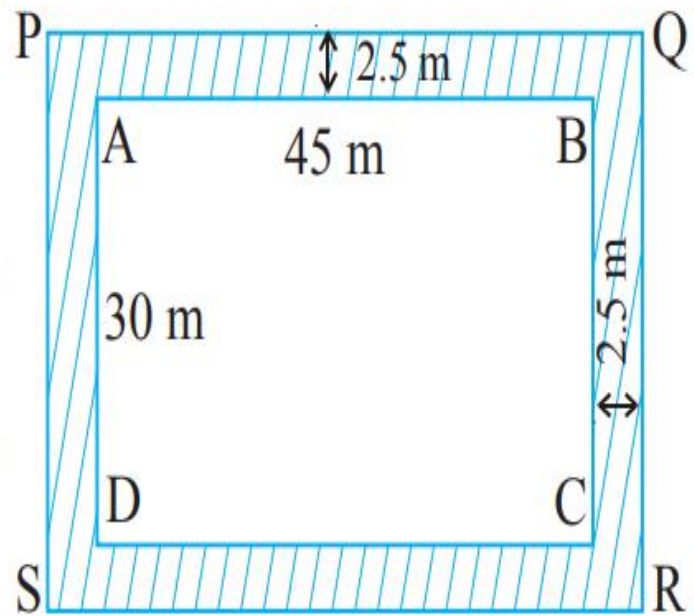
We have, $PQ = (45 + 2.5 + 2.5) \text{ m} = 50 \text{ m}$

$$PS = (30 + 2.5 + 2.5) \text{ m} = 35 \text{ m}$$

$$\text{Area of the rectangle ABCD} = l \times b = 45 \times 30 \text{ m}^2 = 1350 \text{ m}^2$$

$$\text{Area of the rectangle PQRS} = l \times b = 50 \times 35 \text{ m}^2 = 1750 \text{ m}^2$$

$$\begin{aligned} \text{Area of the path} &= \text{Area of the rectangle PQRS} - \text{Area of the rectangle ABCD} \\ &= (1750 - 1350) \text{ m}^2 = 400 \text{ m}^2 \end{aligned}$$





THANK YOU

