

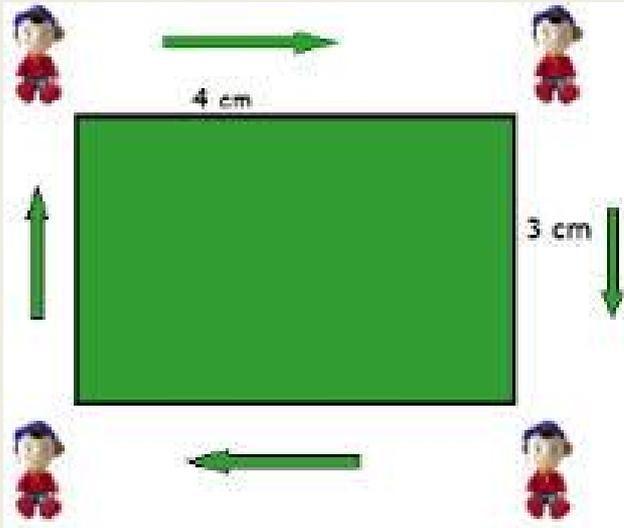
Math Unit 10

P3

Definitions:

Area: The number of square units in the interior of a figure.

Perimeter: The distance around a figure.



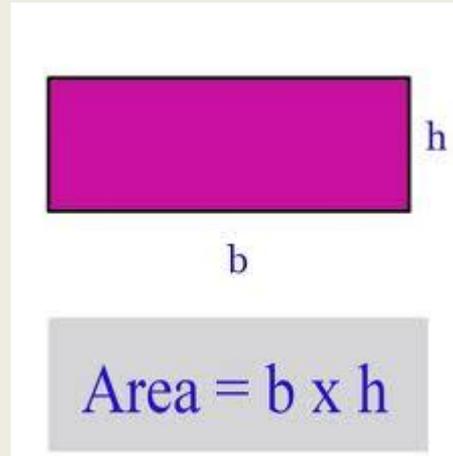
10-1

Area of a rectangle: $\text{area} = \text{length} \times \text{width}$

Perimeter of a rectangle:
 $\text{perimeter} = 2(\text{length}) + 2(\text{width})$

Area of a square: $\text{Area} = (\text{side})(\text{side})$

Perimeter of a square: $\text{Perimeter} = 4s$



Example:

What is the area and the perimeter?

7 in.



3.2 in.

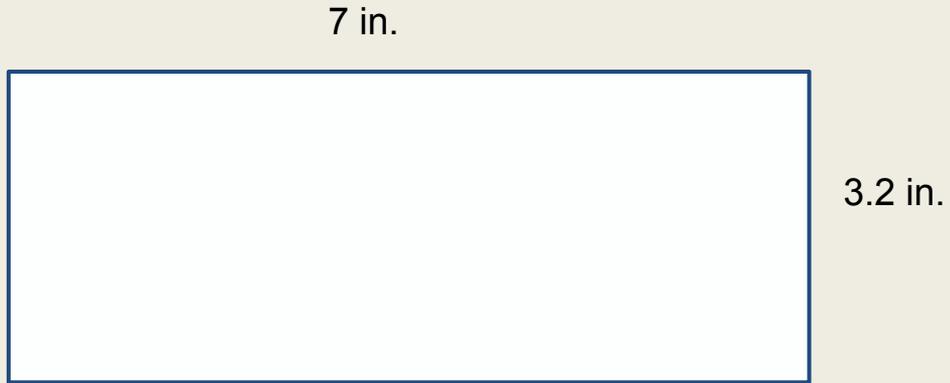
Answer:

Perimeter:

$$7+7+3.2+3.2$$
$$=20.4$$

Area:

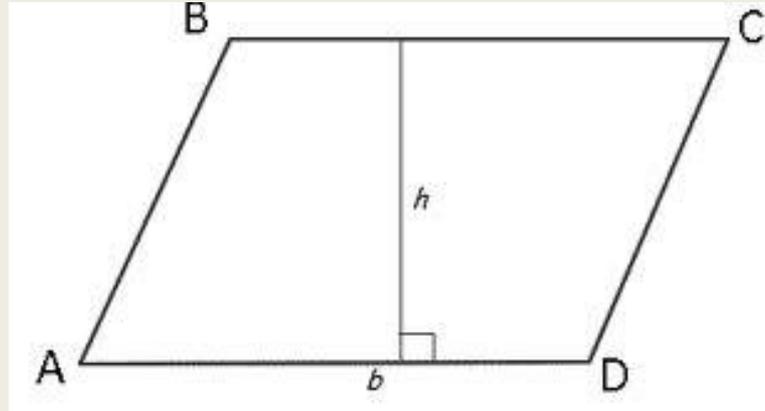
$$7 \times 3.2$$
$$=22.4$$



10-2

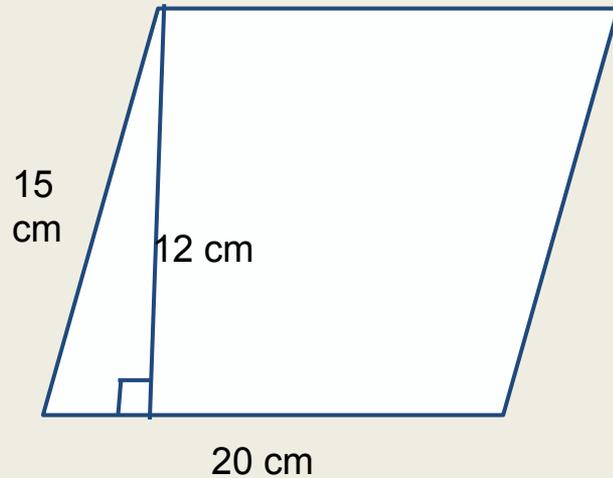
Area of a parallelogram:
 $\text{Area} = (\text{base})(\text{height})$

Perimeter of a parallelogram:
 $\text{perimeter} = a + b + c + d$



Example:

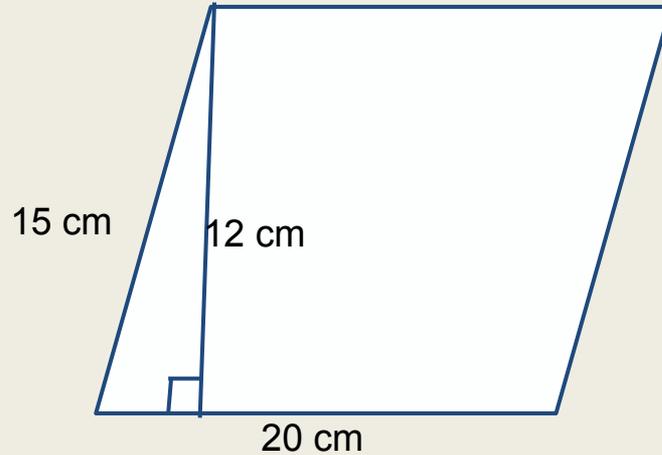
Find the area and the perimeter of the figure below:



Answer:

Perimeter:
 $15+15+20+20$
 $=70$

Area: $12(20)$
 $=240$



10-3

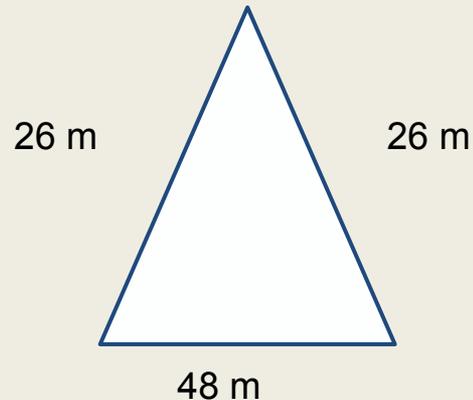
Area of a triangle:

$$\frac{1}{2}(\text{base}) \times (\text{height}) = \text{area}$$

Perimeter:

$$a + b + c = \text{perimeter}$$

Example:

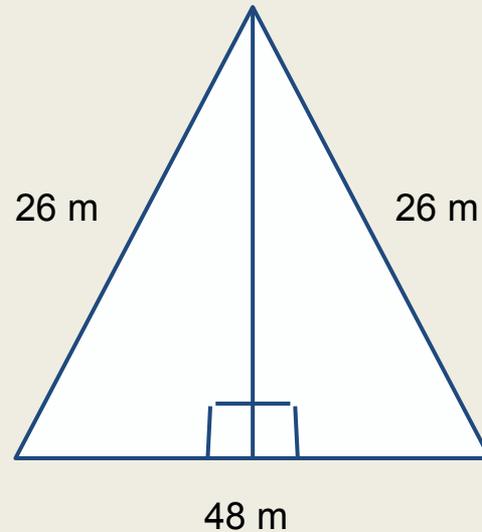


Answer

Perimeter:
 $26+26+48$
 $=100$

Pythagorean theorem:
 $24^2 + b^2 = 26(26)$
 $576 + b(b) = 676$
 $b^2 = 100$
 $b = 10$

Area: $10 \times 24 = 240$



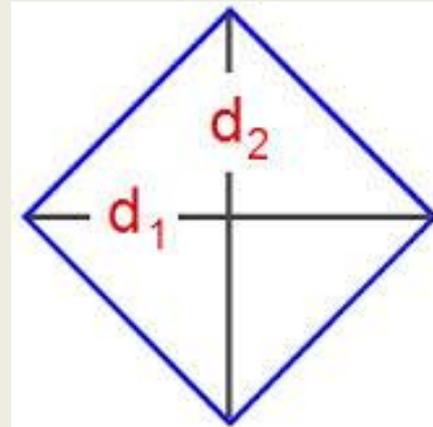
10-4

Area of a Rhombi:

Area = $\frac{1}{2}(\text{diagonal}) \times (\text{diagonal})$ or $A = \frac{1}{2}(d_1)(d_2)$

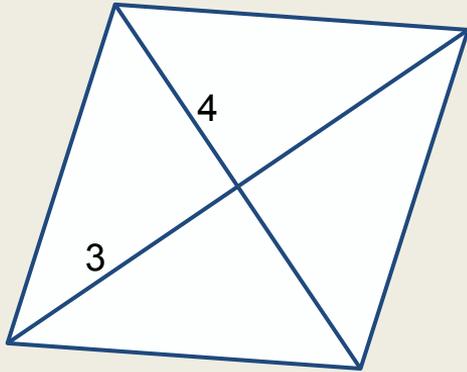
Perimeter of a Rhombi:

Perimeter = $a + b + c + d$



Example

Find all of the measurements below:



d1=

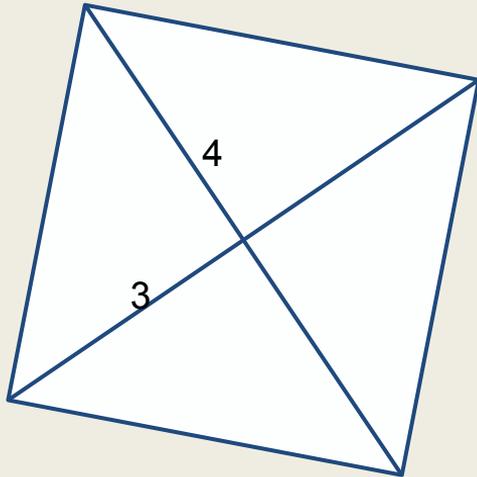
d2=

Area=

Side Length=

Perimeter=

Answers:



$$d1 = 8u$$

$$d2 = 6u$$

$$\text{Area} = 24u$$

$$\text{Side Length} = 5u$$

$$\text{Perimeter} = 20u$$

10-5

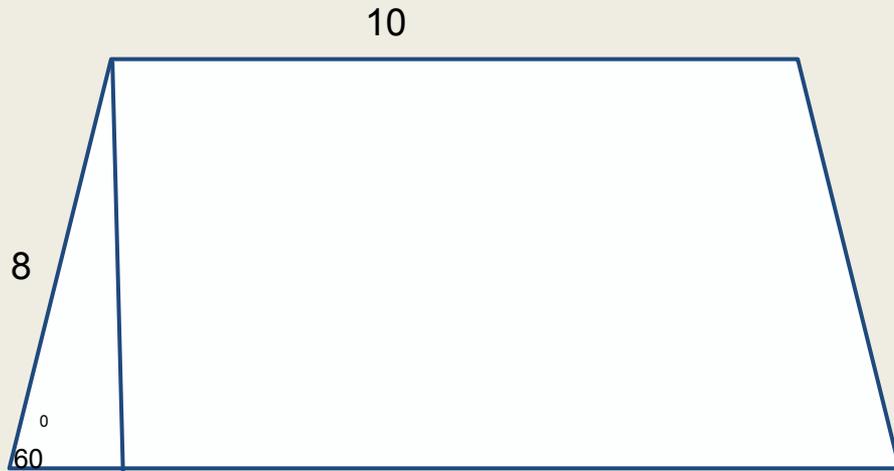
Area of a trapezoid: $P=a +b+c+d$

$$\text{Area} = \frac{(b_1+b_2)h}{2}$$



10-5 Example

Find the area, perimeter, height and bases.



Answers:

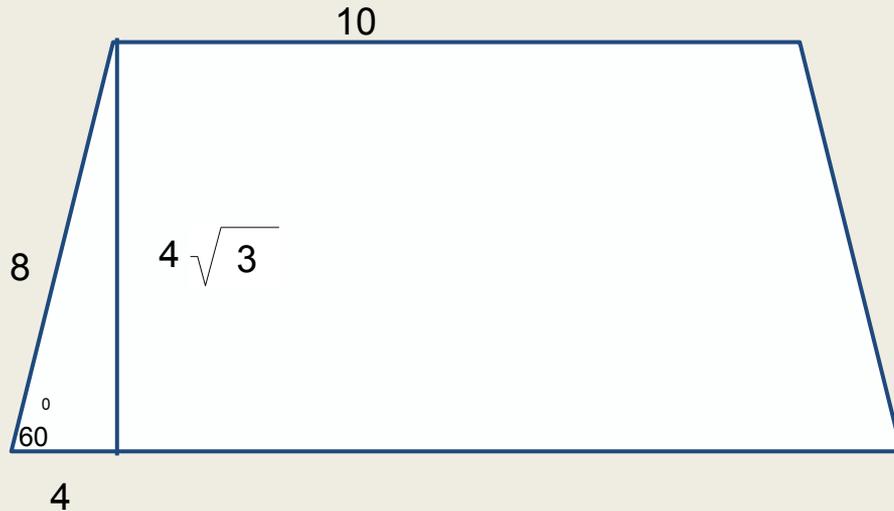
b_1 : 12

b_2 : 20

Height: $4\sqrt{3}$

Area: $64\sqrt{3}$

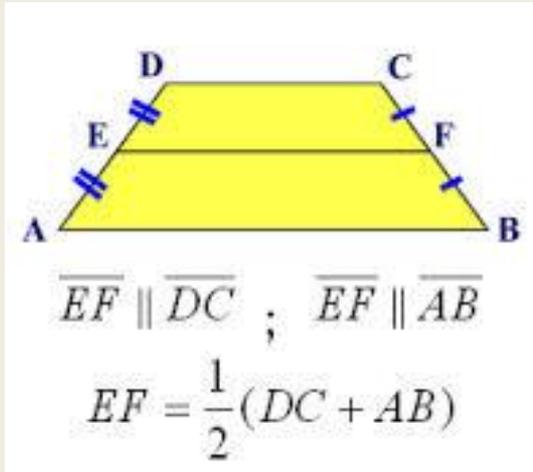
Perimeter: 48



10-5 Median

$\frac{1}{2}$ (base 1 + base 2)

$a=mh$



10-5 Median Example

A trapezoid has an area of 7 cm^2 and a height of 5 cm . How long is the median.