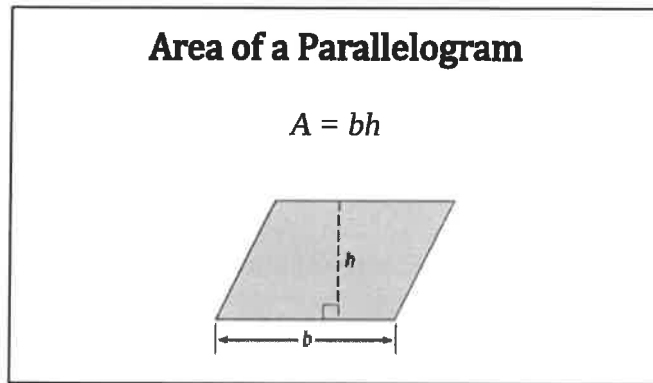


11.1 Areas of Parallelograms and Triangles
Geometry CP



height: the *perpendicular* distance between any 2 parallel bases

1. Find the area and perimeter of the following parallelograms:

a.

10 in.

5 in.

4 in.

$A = 5(10)$

$A = 50 \text{ in}^2$

$P = 10 + 10 + 4 + 4$

$P = 28 \text{ in}$

c.

24 ft

7 ft

23 ft

$A = 24(23)$

$A = 552 \text{ ft}^2$

$24^2 + 7^2 = s^2$

$576 + 49 = s^2$

$625 = s^2$

$25 = s$

$P = 25 + 25 + 23 + 23$

$P = 96 \text{ ft}$

b.

21 cm

17 cm

8 cm

$17^2 = h^2 + 8^2$

$289 = h^2 + 64$

$225 = h^2$

$15 = h$

$A = 21(15)$

$A = 315 \text{ cm}^2$

$P = 21 + 21 + 17 + 17$

$P = 76 \text{ cm}$

d.

13 in.

15 in.

5 in.

$h^2 + 5^2 = 13^2$

$h^2 + 25 = 169$

$h^2 = 144$

$h = 12$

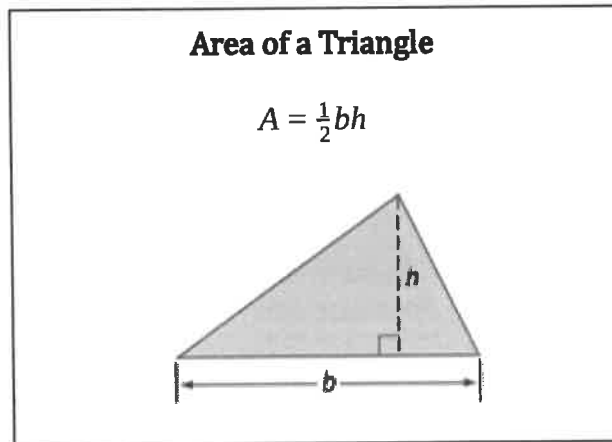
$A = 12(15)$

$A = 180 \text{ in}^2$

$P = 13 + 15 + 15 + 13$

$P = 56 \text{ in}$

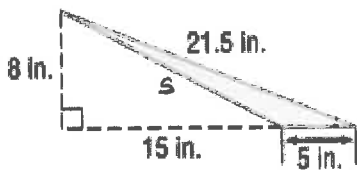
11.1 Areas of Parallelograms and Triangles
Geometry CP



height = altitude
↓
vertex → perpendicular

2. Find the perimeter and area of each triangle:

a.



$$A = \frac{1}{2}(5)(8)$$

$$A = 40 \text{ in}^2$$

$$8^2 + 15^2 = s^2$$

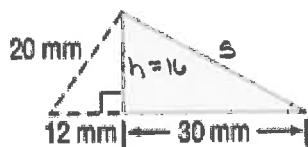
$$289 = s^2$$

$$17 = s$$

$$P = 17 + 5 + 21.5$$

$$P = 43.5 \text{ in}$$

b.



$$20^2 = h^2 + 12^2$$

$$400 = h^2 + 144$$

$$256 = h^2$$

$$16 = h$$

$$A = \frac{1}{2}(30)(16)$$

$$A = 240 \text{ mm}^2$$

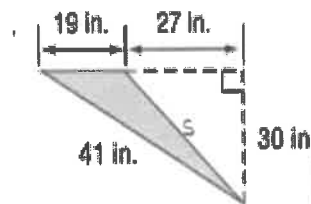
$$P = 16 + 30 + 34$$

$$P = 80 \text{ mm}$$

$$16^2 + 30^2 = s^2$$

$$34 = s$$

c.



$$A = \frac{1}{2}(19)(30)$$

$$A = 285 \text{ in}^2$$

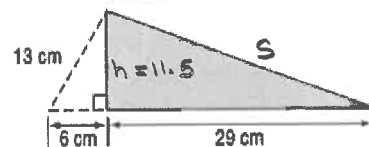
$$27^2 + 30^2 = s^2$$

$$1629 = s^2$$

$$40.4 \text{ in} = s$$

$$P = 40.4 + 41 + 19$$

$$P = 100.4 \text{ in}$$



$$13^2 = 6^2 + h^2$$

$$169 = 36 + h^2$$

$$132 = h^2$$

$$11.5 = h$$

$$A = \frac{1}{2}(29)(11.5)$$

$$A = 166.8 \text{ cm}^2$$

$$11.5^2 + 29^2 = s^2$$

$$973.25 = s^2$$

$$31.2 = s$$

$$P = 11.5 + 29 + 31.2$$

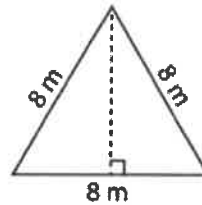
$$P = 71.7 \text{ cm}$$

11.1 Areas of Parallelograms and Triangles
Geometry CP

Area of an Equilateral Triangle:

$$A = \frac{\sqrt{3}}{4}s^2$$

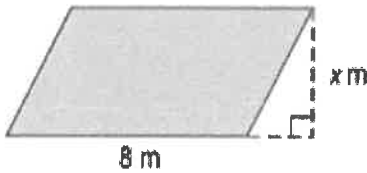
3. Find the area of the following:



$$A = \frac{\sqrt{3}}{4}(8)^2$$

$$A = 27.7 \text{ m}^2$$

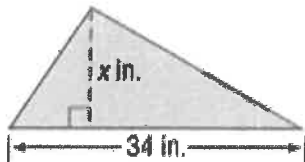
4. If the area of the figure below is 148 m^2 , find the value of x .



$$148 = 8x$$

$$18.5 \text{ m} = x$$

5. If the area of the figure below is 357 in^2 , find the value of x .



$$A = \frac{1}{2}bh$$

$$357 = \frac{1}{2}(34)x$$

$$357 = 17x$$

$$21 \text{ in} = x$$

