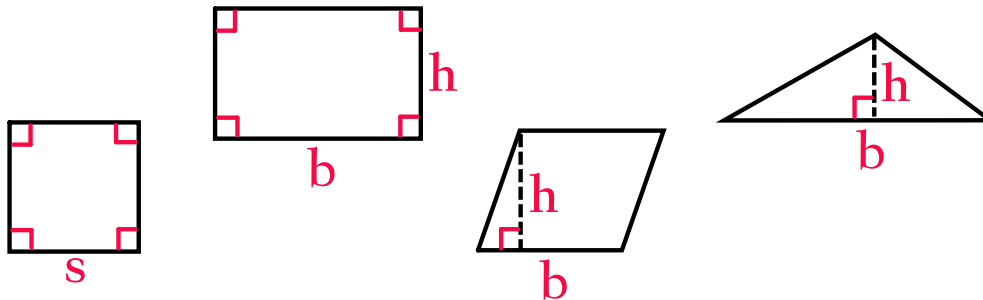
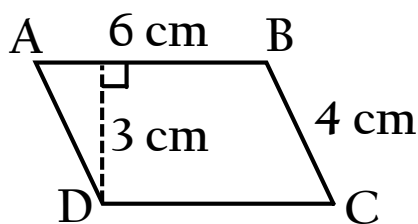


Area of Triangles and Quadrilaterals

| | |
|---------------|--|
| Square | $A = s^2$ |
| Rectangle | $A = bh$ (or $A = lw$) |
| Parallelogram | $A = bh$ |
| Triangle | $A = \frac{1}{2}bh$ $A = \frac{bh}{2}$ |



Example 1

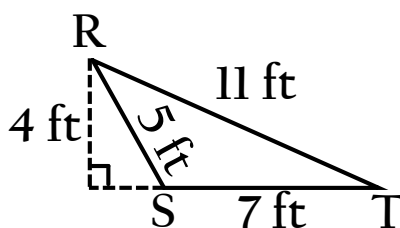
Find the area of $\square ABCD$.

$$A = bh$$

$$A = (6)(3)$$

$$A = 18 \text{ cm}^2$$

Example 2

Find the area of $\triangle RST$.

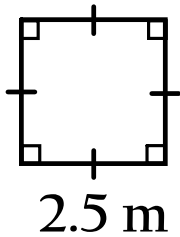
$$A = \frac{1}{2}bh$$

$$A = \frac{1}{2}(7)(4)$$

$$A = 14 \text{ ft}^2$$

Example 3

Find the area of the figure below.



$$A = s^2$$

$$A = (2.5)^2$$

$$A = 6.25 \text{ m}^2$$

Example 4Find the height of a triangle that has an area of 12 yd^2 and a base length of 8 yd.

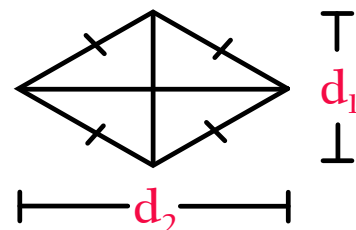
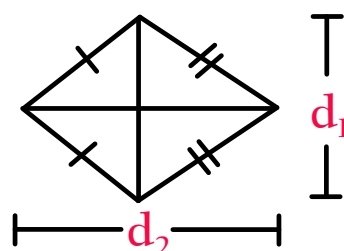
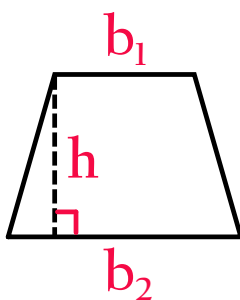
$$A = \frac{1}{2}bh$$

$$12 = \frac{1}{2}(8)h$$

$$\frac{12}{4} = \frac{4h}{4}$$

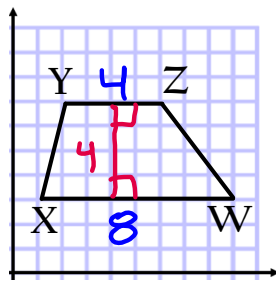
$$h = 3 \text{ yd}$$

| | |
|-----------|-------------------------------|
| Trapezoid | $A = \frac{1}{2}h(b_1 + b_2)$ |
| Kite | $A = \frac{1}{2}d_1d_2$ |
| Rhombus | $A = \frac{1}{2}d_1d_2$ |



Example 5

Find the area of trapezoid WXYZ.



$$A = \frac{1}{2}h(b_1 + b_2)$$

$$A = \frac{1}{2} \cdot 4(4 + 8)$$

$$A = 2(12)$$

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

$$\begin{array}{r} 4+8 \\ \downarrow \\ 12 \\ \times 4 \\ \hline 48 \\ \div 2 \\ \hline 24 \end{array}$$

Example 6Find one of the bases of a trapezoid if the height is 6 in, the other base is 9 in, and the area is 60 in².

$$60 = \frac{1}{2} \cdot 6(b + 9)$$

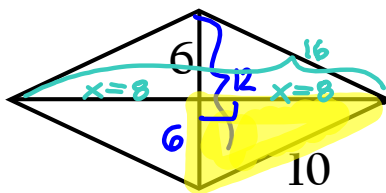
$$\frac{60}{3} = \frac{6(b+9)}{3}$$

$$\frac{20}{-9} = \frac{b+9}{-9}$$

$$11 \text{ in} = b$$

Example 7

Find the area of the rhombus below.



$$A = \frac{1}{2}d_1d_2$$

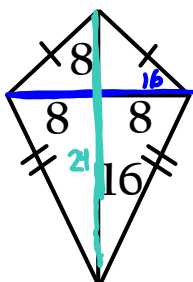
$$A = \frac{1}{2} \cdot 16 \cdot 12$$

$$A = 96 \text{ units}^2$$

$$\begin{array}{l} 6^2 + x^2 = 10^2 \\ 36 + x^2 = 100 \\ x^2 = 64 \\ x = 8 \end{array}$$

Example 8

Find the area of the figure below.



$$A = \frac{1}{2}d_1d_2$$

$$A = \frac{1}{2} \cdot 16 \cdot 24$$

$$A = 192 \text{ units}^2$$