

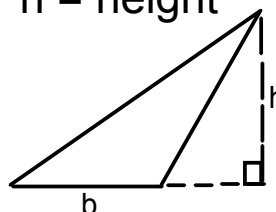
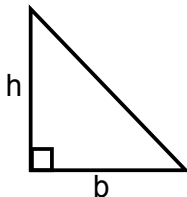
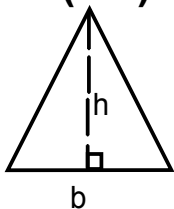
11-2 Areas of Triangles,
Trapezoids, Rhombus

Area of Triangle:

$$A = (1/2)bh$$

b = base

h = height

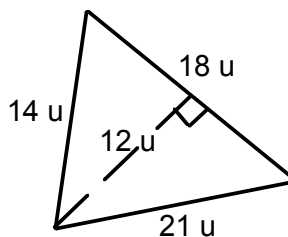


Find the area of the
triangle shown.

$$A = (1/2)(18)(2)$$

$$216$$

$$A = 108u$$



Area of Triangles:

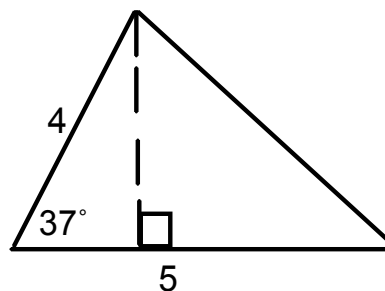
$$A = (1/2)absinC$$

This formula will work when the angle you
are given is between two sides. (SAS)

Find the area of the
triangle shown.

$$1/2 \cdot 4 \cdot 5 \cdot \sin(37)$$

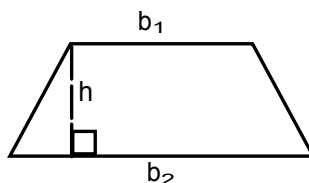
$$6.01$$



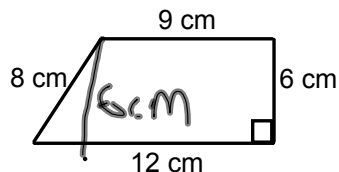
Area of Trapezoid:

$$A = (1/2)h(b_1+b_2)$$

h = height b_1 = base 1 b_2 = base 2



Find the area of the trapezoid.



$$A = (1/2) \cdot 6 \cdot (12 + 9)$$

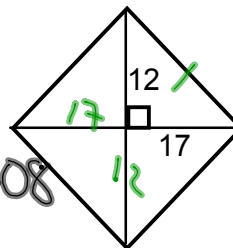
$$A = 63 \text{ cm}^2$$

Area of Rhombus:

$$A = (1/2)d_1d_2 \quad d_1 = \text{diagonal 1}$$

$$d_2 = \text{diagonal 2}$$

Find the area and perimeter of the rhombus.



$$\frac{1}{2} \cdot 24 \cdot 34 = 408$$

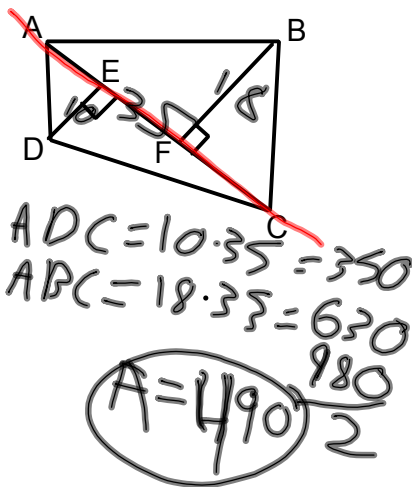
$$12^2 + 17^2 = 433$$

$$\sqrt{433} = 20.8$$

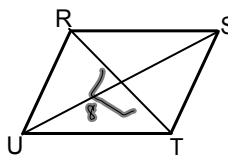
Congruent figures will have equal areas.

If you know all but one measurement in a quadrilateral you can solve for the missing measure by working backwards with the appropriate formula.

1. Find the area of quadrilateral ABCD if
AC = 35, BF = 18, and DE = 10.



2. Rhombus RSTU has an area of 64 square inches. Find US if RT = 8 inches.



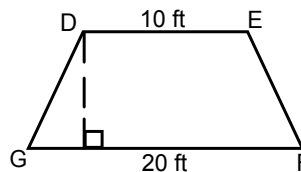
$$A = \frac{1}{2} d_1 d_2$$

$$64 = \frac{1}{2} \cdot 8 \cdot d_2$$

$$\frac{128}{8} = \frac{8 \cdot d_2}{8}$$

$$16 = d_2$$

3. Trapezoid DEFG has an area of 120 sq. ft. Find the height of DEFG.



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

$$b_1 = 10$$

$$b_2 = 20$$

$$A = 120$$

$$120 = \frac{1}{2} h(10 + 20)$$

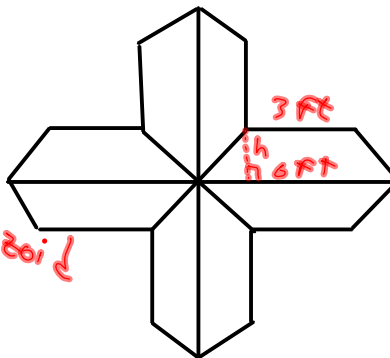
$$120 = \frac{1}{2} h(30)$$

$$120 = 15h$$

$$\frac{120}{15} = \frac{15h}{15}$$

$$8 \text{ ft} = h$$

4. The stained glass window is composed of 8 trapezoidal shapes. The total area of the design is 72 sq. ft. Each trapezoid has bases of 3 ft and 6 ft. Find the height of each trapezoid.



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

$$72 \div 8 = 9 = \text{area of one trapezoid}$$

$$9 = \frac{1}{2} h(3 + 6)$$

$$9 = \frac{1}{2} h(9)$$

$$9 = 4.5h$$

$$\frac{9}{4.5} = \frac{4.5h}{4.5}$$

$$2 \text{ ft} = h$$