10.1 Areas of Parallelograms and Triangles

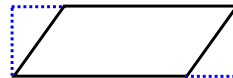**Objective:** Students will be able to find the area of parallelograms and triangles.

Area of rectangle
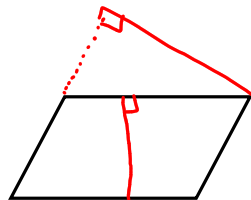
$A = bh$

Area of parallelogram

$A = bh$

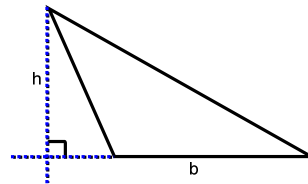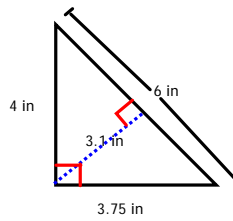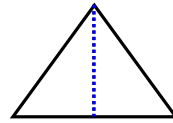Note: The Base can be any of the sides (depends on the altitude)

The Altitude is a perpendicular segment to the base from its opposite side
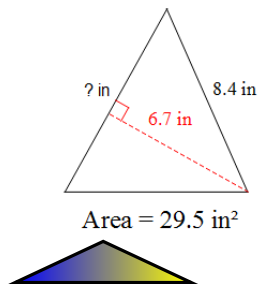
The Height is the length of the altitude

Area of triangle $A = \frac{1}{2}bh$

4 in

6 in

3.1 in

3.75 in

h

b

Given the area - find the missing side or altitude.

? in   8.4 in
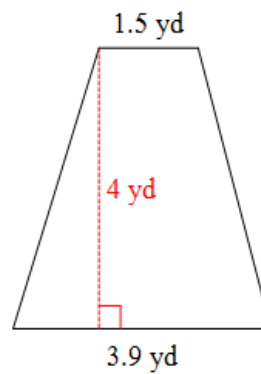
6.7 in

Area = 29.5 in²

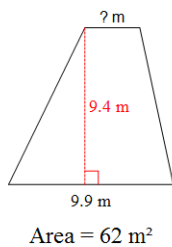## 10.2 Areas of Trapezoids, Rhombuses, and Kites

Objective: Students will be able to find the area of kites, trapezoids, and rhombuses.
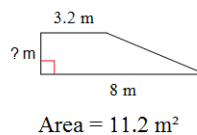
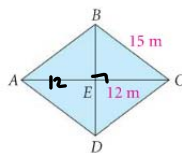Area of a trapezoid   1.5 yd

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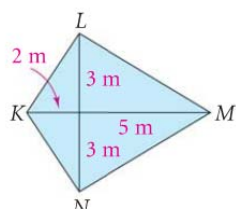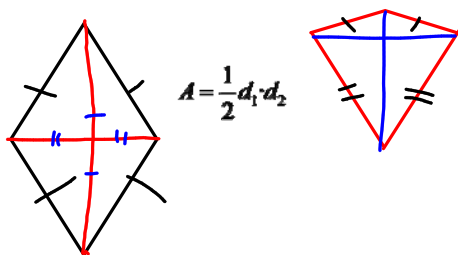
4 yd

3.9 yd

5)

? m

9.4 m

9.9 m

Area = 62 m²

6)

3.2 m

? m

8 m

Area = 11.2 m²

Area of Rhombus and Kite

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

L

2 m

3 m

K   5 m   M

3 m

N

B

15 m

A   E   12 m   C

D

Ex: For $\square ABCD$, find CF to the nearest tenth.

F

D ┐ C

13 in.   │12 in.

A   E   B
└─ 10 in. ─┘

C

12 in.

B

10 in.

F   D   E

13 in.   A
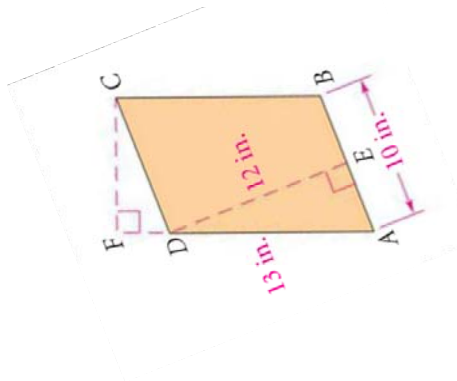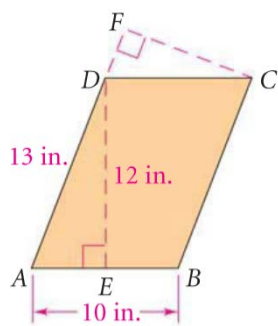
Multiple Choice What is the area of trapezoid $PQRS$?

(A) $6\ m^2$ (B) $10\sqrt{3}\ m^2$
(C) $12\sqrt{3}\ m^2$ (D) $35\ m^2$

In Example 2, suppose h is made smaller so that $m\angle P = 45$ while bases and angles R and Q are unchanged. Find the area of trapezoid $PQRS$.

S   5 m   R

60°

P   7 m   Q