Example 1 — Find the trig ratio for θ

Given the hypotenuse and a side

$4\sqrt{13}$ 12 θ A B C

Find $\cos\theta$.

opp=

adj=

hyp=

Given two sides

θ 12 5 A B C

Find $\sin\theta$.

opp=

adj=

hyp=

Solving Right Triangles

To solve a right triangle means…
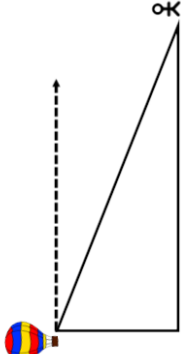
Triangle Sum Theorem:

Pythagorean Theorem:

Example 4 — Application Problem

You are in a hot air balloon 600 ft off the ground where you can see your friend. If the angle from your line of sight to your friend is 20°, how far is he from the point on the ground directly below the balloon?
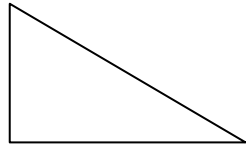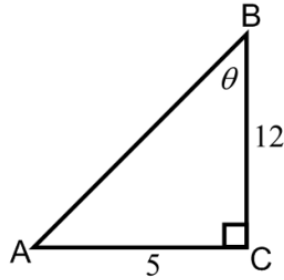

Example 2 — Solve the triangle given an angle and a side

Sketch the right triangle.

$m\angle A = \qquad a =$

$m\angle B = 49° \qquad b = 7$

$m\angle C = \qquad c =$

- Use a trig ratio to find a missing side.
- Use the Pythagorean Theorem to find third side.
- Use the Triangle Sum Theorem to find the missing angle.

Example 3 — Solve the triangle given two sides

Sketch the right triangle.

$m\angle A = \qquad a = 8$

$m\angle B = \qquad b =$

$m\angle C = \qquad c = 14$

- Use the Pythagorean Theorem to find third side.
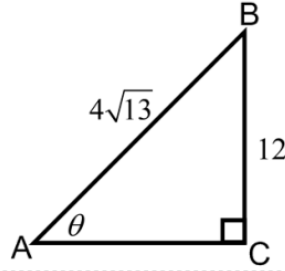- Use an inverse trig ratio to find a missing angle.
- Use the Triangle Sum Theorem to find the missing angle.