

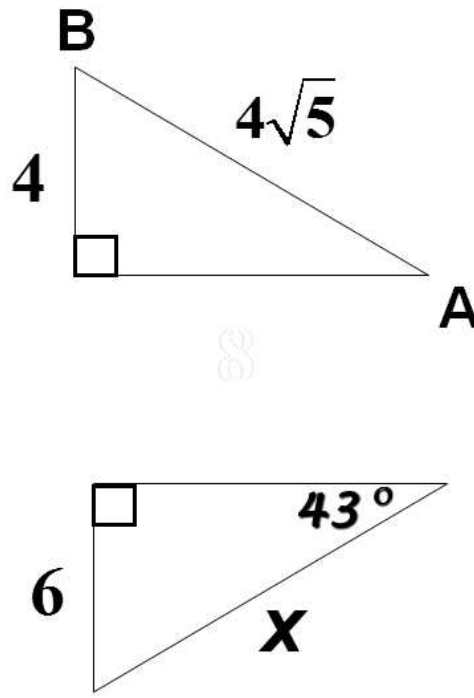
Starter

$$\sin A = \frac{\sqrt{5}}{5}$$

$$\cos B = \frac{\sqrt{5}}{5}$$

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

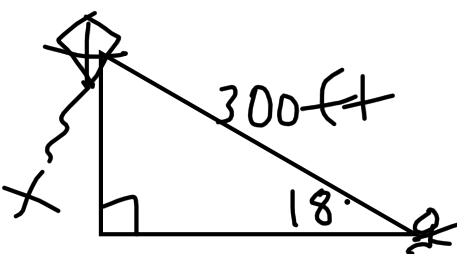
$$x = \frac{6}{\sin 43} = 8.8$$



The first diagram shows a right triangle with a vertical leg of length 4, a horizontal leg of length 8, and a hypotenuse of length $4\sqrt{5}$. The right angle is at the bottom-left vertex. The top vertex is labeled B and the right vertex is labeled A.

The second diagram shows a right triangle with a vertical leg of length 6, an angle of 43° at the top-right vertex, and a hypotenuse of length x . The right angle is at the top-left vertex.

A boy flies a kite at an angle of elevation of 18° . The kite reaches its maximum height 300 feet away from the boy. What is the maximum height of the kite? Round to the nearest tenth.



$$\tan 18 = \frac{x}{300}$$

$$x = 300 \tan 18$$

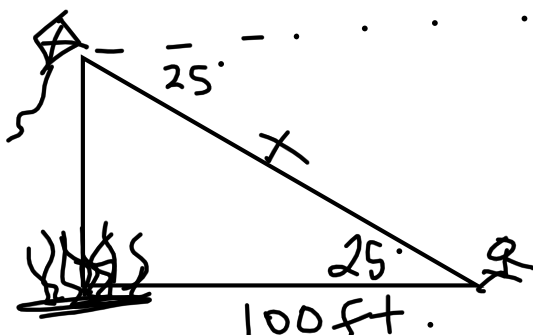
$$x = 97.5 \text{ ft}$$

The diagram shows a right triangle representing the kite's path. The horizontal leg is labeled 300 ft, the vertical leg is labeled x, and the angle of elevation at the bottom-right vertex is labeled 18°. A right angle symbol is at the bottom-left vertex.

The handwritten work shows the trigonometric equation $\tan 18 = \frac{x}{300}$, followed by the solution $x = 300 \tan 18$ and the final answer $x = 97.5 \text{ ft}$.

SJ pg.266

14. A camera attached to a kite is filming the damage caused by a brush fire in a closed-off area. The camera is directly above the center of the closed-off area.
- a. A person is standing 100 feet away from the center of the closed-off area. The angle of depression from the camera to the person flying the kite is 25° . How long is the string on the kite?



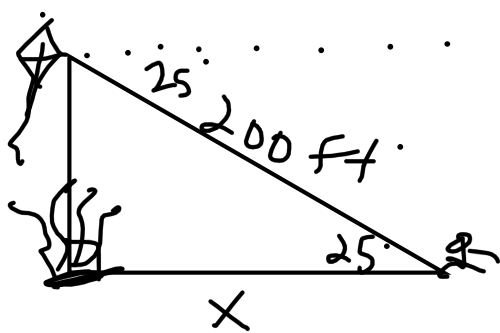
$$X = 110.3 \text{ ft}$$

$$\cos 25 = \frac{100}{x}$$

$$x \cos 25 = \frac{100}{\cos 25}$$

$$x = \frac{100}{\cos 25}$$

- b. If the string on the kite is 200 feet long, how far away must the person flying the kite stand from the center of the closed-off area, assuming the same angle of depression of 25° , to film the damage?



$$\cos 25 = \frac{x}{200}$$

$$x = 200 \cos 25$$

$$x = 181.3 \text{ ft}$$

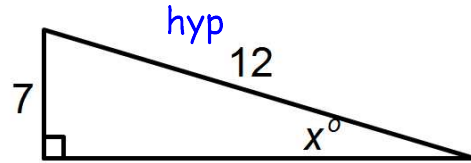
Using Trig Ratios to find the measure of an angle of a triangle.

Step 1: Decide if you will use Sine, Cosine, or Tangent.

$$\sin x = \frac{7}{12}$$

Soh

opp.
leg



Step 2: You must use INVERSE (\sin^{-1}) Sine to find an angle.

$$x = \sin^{-1}\left(\frac{7}{12}\right)$$

Step 3: Get your calculator and follow these steps:

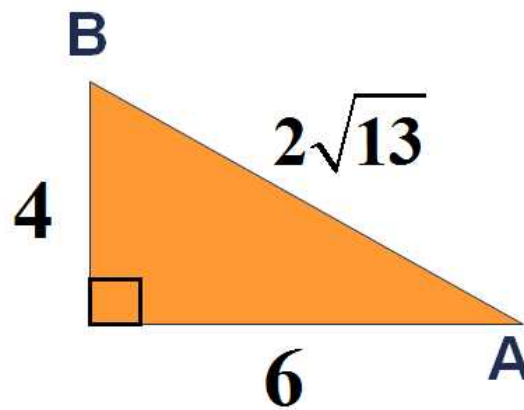
1. Press 2nd
2. Press Sin
3. Press 7
4. Press n/d
5. Press 12
6. Press the right arrow
7. Press) then enter

x = 35.7

Finding angle measure

$$\tan A = \frac{2}{3}$$

$$m \angle A = 33.7^\circ$$



$$m \angle A = \tan^{-1}\left(\frac{2}{3}\right)$$

$$m \angle A \approx 33.69 \approx 33.7^\circ$$

11/11/2015

Example 2 **RIGHT TRIANGLES**

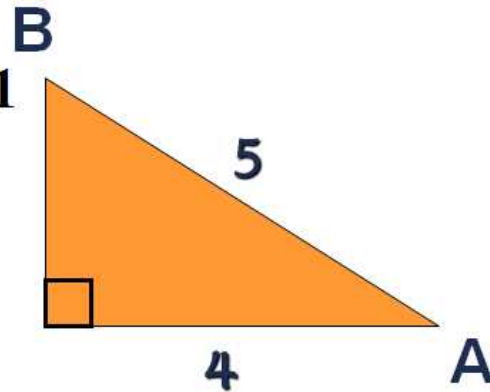
$$m\angle A = \underline{\underline{36.9}}$$

$$m\angle B = \underline{\underline{90 - 36.9 = 53.1}}$$

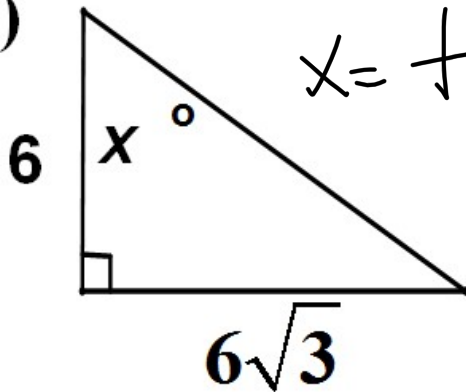
$$\cos A = \frac{4}{5}$$

$$m\angle A = \cos^{-1}(4/5)$$

$$m\angle A = 36.9$$



3)

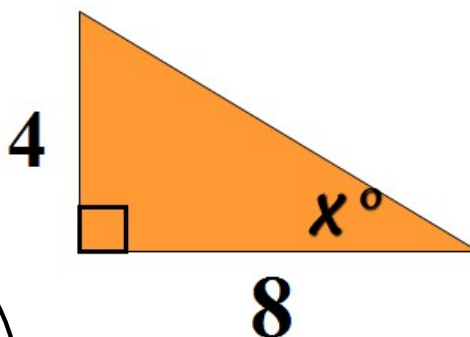


$$x = \tan^{-1}\left(\frac{6\sqrt{3}}{6}\right)$$

$$\underline{\underline{x = 60^\circ}}$$

Solve for x .

1) $x = 26.6$
 $x = \tan^{-1}\left(\frac{4}{8}\right)$



Inverse Trigonometric Ratios

Date _____

Find each angle measure to the nearest ~~degree~~ *tenth*.

1) $\sin B = 0.4848$

29°

2) $\sin A = 0.5150$

31°

~~Homework~~ classwork
Worksheet TURN IN
TODAY!
Using Trig ratios to find
angle measures & Word
Problems