Name: Key	Date:

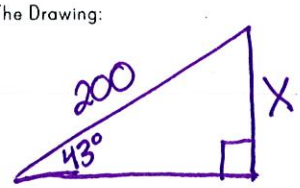
Trig Word Problem Practice

Your Score:

Directions: Carefully read and illustrate each word problem, then use sin, cosine and tangent or their inverse to find the missing side length or angle. Your response should be written as a full sentence.

1. A boy flying a kite lets out 200 feet of string which makes an angle of 43° with the ground. If the string is straight, how high above the ground is the kite?

The Drawing:



The Math:

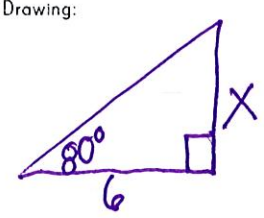
$\sin(43) = \frac{X}{200}$

$200 \sin(43) = X$

Response: the kite is 136.4 ft above the ground.

2. A ladder leaning against a wall makes an angle of 80° with the ground. If the foot of the ladder is 6 feet from the wall, how high on the wall is the ladder?

The Drawing:



The Math:

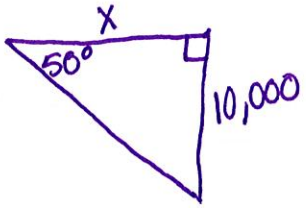
$\tan(80) = \frac{X}{6}$

$6 \tan(80) = X$

Response: ≈ 34 feet

3. You observe a hot air balloon 10,000 feet in the air. If the balloon is making a 50° angle with the ground, how far away are you from the hot air balloon?

The Drawing:



The Math:

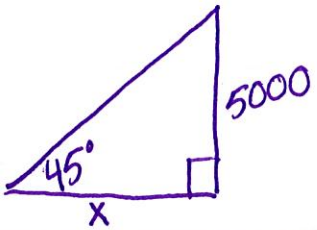
$\tan(50) = \frac{10{,}000}{X}$

$X = \frac{10{,}000}{\tan(50)}$

Response: 8,390 feet

4. A helicopter climbs at an angle of 45° with the ground.
How much ground distance has it covered when it has reached an altitude of 5,000 feet?

The Drawing:



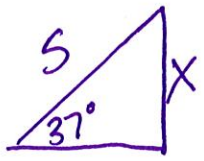
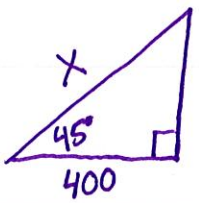
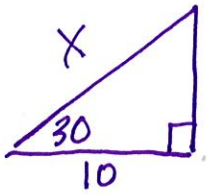
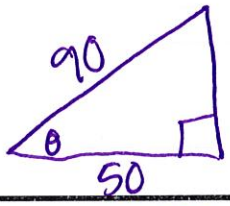
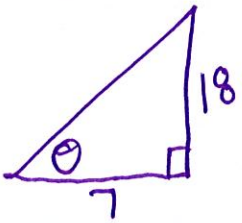
The Math:

$\tan(45) = \frac{5000}{X}$

$X = \frac{5000}{\tan(45)}$

Response: 5,000 feet

Key

5. A 5ft shovel is leaning onto a fence. The handle of the shovel makes a 37° angle with the fence. How far up the fence does the shovel reach?	The Drawing: 	The Math: $\sin(37) = \frac{x}{5}$ $5\sin(37) = x$
	Response: ≈ 3 ft	
6. Keon's sister is flying a kite. Her kite string makes an angle of 45° with the ground. If Keon is standing 400 feet from a point on the ground directly below the kite, find the length of the kite string	The Drawing: 	The Math: $\cos(45) = \frac{400}{x}$ $x = \frac{400}{\cos(45)}$
	Response: ≈ 565.7 ft	
7. A man is standing 10 feet from his leashed dog. If the mans leash and the dog create a 30° angle, how long is the leash?	The Drawing: 	The Math: $\cos(30) = \frac{10}{x}$ $x = \frac{10}{\cos(30)}$
	Response:	
8. A 90 ft piece of wire is tied to a pole and connected to a stake in the ground 50 ft away from the pole. Find the angle that the wire makes with the ground.	The Drawing: 	The Math: $\cos\theta = \frac{50}{90}$ $\theta = \cos^{-1}\left(\frac{50}{90}\right)$
	Response: $\approx 56.3°$	
9. A ladder leans against a wall. The top of the ladder reaches 18 ft above the ground. The foot of the ladder is 7 feet from the building. Find the angle that the top of the ladder makes with the wall.	The Drawing: 	The Math: $\tan\theta = \frac{18}{7}$ $\theta = \tan^{-1}\left(\frac{18}{7}\right)$
	Response: $\approx 68.7°$	