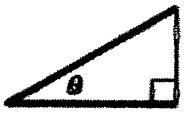
Name:_____ Per:_____

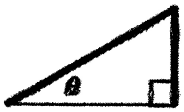
Choosing a Trig Tool

With your study team:

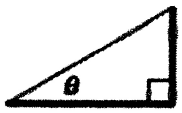
- Look through all the triangles first and see if any look familiar or are ones that you know how to answer right away without using a trig tool.



$\cos\theta = \frac{adj}{hyp}$



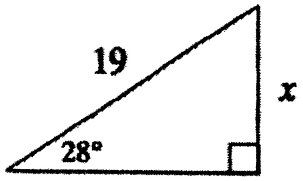
$\sin\theta = \frac{opp}{hyp}$



$\tan\theta = \frac{opp}{adj}$

- Then identify which tool to use based on where the reference angle (the given acute angle) is located and which side lengths are involved.
- Write and solve an equation to find the missing side length.

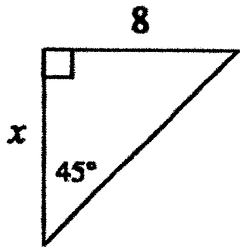
a.



x = 8.92

sin

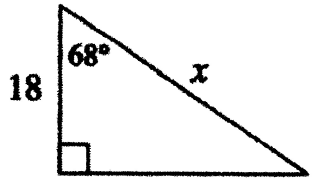
b.



x = 8

tan

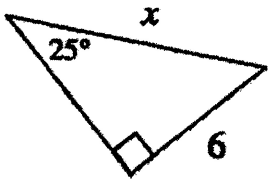
c.



x = 48.1

cos

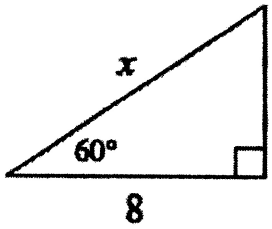
d.



x = 14.2

sin

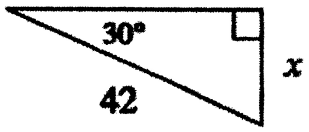
e.



x = 16

cos

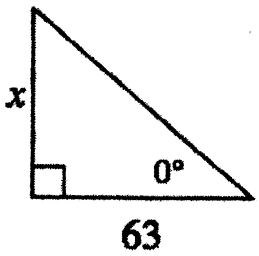
f.



x = 21

sin

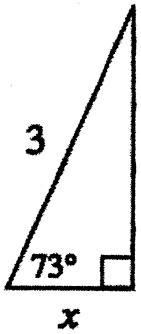
g.



x = 0

tan

h.

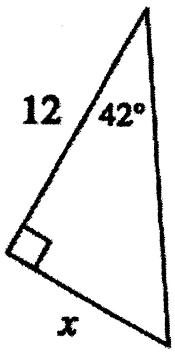


x = 0.877

<turn over>

cos

i.



x = 10.8

tan

Draw a diagram and use trigonometric ratios to solve each of the following problems.

2. Juanita is flying a kite at the park and realizes that all 500 feet of string are out. Margie measures the angle of the string with the ground with her clinometer and finds it to be 42.5°. How high is Juanita's kite above the ground? $h = 337.8$ ft sin

3. Nell's kite has a 350 foot string. When it is completely out, Ian measure the angle to be 47.5°. How far would Ian need to walk to be directly under the kite? $d = 236.5$ ft cos

4. Mayfield High School's flagpole is 15 feet high. Using a clinometer, Tamara measure an angle of 11.3° to the top of the pole. Tamara is 62 inches tall. How far from the flagpole is Tamara standing?

$d = 590.5$ ft tan

5. The circle shown has center O and radius 3.9 cm. The angle measure is in radians.
There are 180 degrees in 3.14 radians (convert to degrees).

$\frac{\theta}{180} = \frac{1.8}{3.14}$ $\theta = 103.2°$

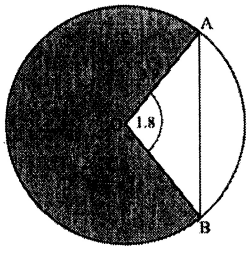


diagram not to scale

Points A and B lie on the circle and angle AOB is 1.8 radians.

(a) Find length AB.

$m\overline{AB} = 6.2$ cm

b) Find the area of the shaded region.

$A = A_0 - A_{sect.}$ $3.9^2\pi - \frac{1.8}{2\pi} \cdot 3.9^2\pi$

$= 15.21\pi - 13.689$

≈ 34 cm^2