

Day 2

Tuesday, February 14, 2017 9:07 AM

A series of horizontal blue lines for writing, with a vertical red margin line on the left side.

Geometry Honors
Trig Day 2

Name:

No calculator! Use the table below to solve the following equations.

θ	$\cos \theta$	$\sin \theta$
0°	1.00	.00
10°	.98	.17
20°	.94	.34
30°	.87	.50
40°	.77	.64
50°	.64	.77
60°	.50	.87
70°	.34	.94
80°	.17	.98
90°	.00	1.00

1. $\sin 10^\circ = x$

0.17

2. $\cos 70^\circ = x$

0.34

3. $\sin 80^\circ = x$

0.98

4. $\cos 80^\circ = x$

0.17

5. $\cos(x) = .5$

60°

6. $\sin(x) = .94$

70°

7. $\cos(x) = 1$

0°

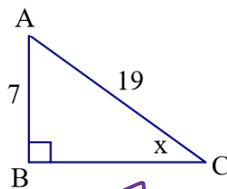
8. $\sin(x) = .64$

40°

Calculator allowed!

Solve for angle x in the trigonometric ratios given.

9.



$\sin x = \frac{7}{19}$

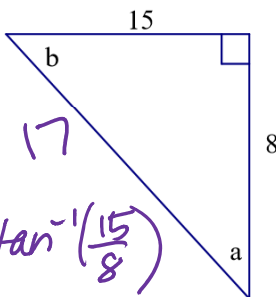
$x = \sin^{-1}\left(\frac{7}{19}\right) = 21.62^\circ$

10. $\tan x = \left(\frac{101}{90}\right)$
 $x = \tan^{-1}\left(\frac{101}{90}\right)$
 $= 48.30^\circ$

11. $\cos x = .42$

$x = \cos^{-1}(0.42)$
 $= 65.17^\circ$

12. Find angles a and b.

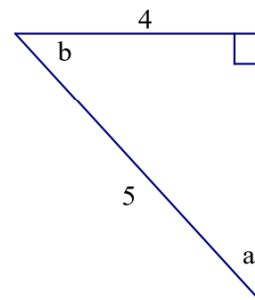


$a = \tan^{-1}\left(\frac{15}{8}\right)$

$= 61.93^\circ$

$b = 28.07^\circ$

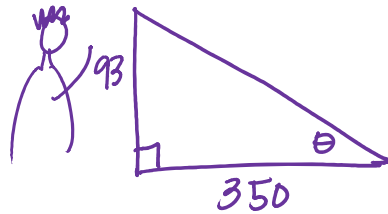
13. Find angles a and b.



$a = 53.13^\circ$

$b = 36.87^\circ$

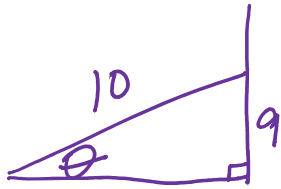
14) The height of the Statue of Liberty from the bottom to the top is around 93 meters. If you're standing 350 meters from the base of the statue, at what angle would you need to look up to see the top of the torch?



$$\tan \theta = \frac{93}{350} \quad \text{theta}$$

$$\theta = \tan^{-1}\left(\frac{93}{350}\right) = 14.88^\circ$$

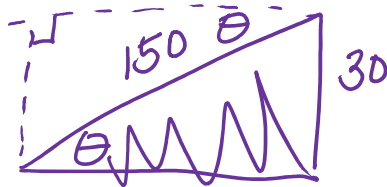
15) A 10 foot ladder is leaning against a wall. The top of the ladder touches the wall 9 feet up the wall. What angle does the ladder make with the ground?



$$\sin \theta = \frac{9}{10}$$

$$\theta = \sin^{-1}\left(\frac{9}{10}\right) = 64.16^\circ$$

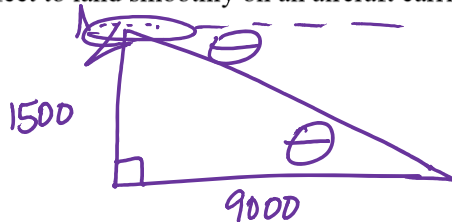
16) In a movie theater where the aisle is 150 feet long, the floor is sloped so there is a difference of 30 feet between the front and back of the theater. What is the angle of depression?



$$\sin \theta = \frac{30}{150}$$

$$\theta = \sin^{-1}\left(\frac{30}{150}\right) = 11.54^\circ$$

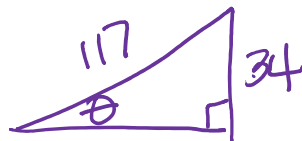
17) An air force pilot is flying at an altitude of 1500 feet and must descend over a horizontal distance of 9000 feet to land smoothly on an aircraft carrier. What is the plane's angle of descent?



$$\tan \theta = \frac{15}{90}$$

$$\theta = \tan^{-1}\left(\frac{15}{90}\right) = 9.46^\circ$$

18) A tree is struck by lightning and snaps off 34 feet above the ground. The top part of the tree, 17 feet long, rests with the tip on the ground while the broken end rests on the top of the stump. What angle does the top part of the tree make with the ground?



$$\sin \theta = \frac{34}{17}$$

$$\theta = \sin^{-1}\left(\frac{34}{17}\right) = 16.89^\circ$$