Name: _____ 8.3- Trigonometry Inverses

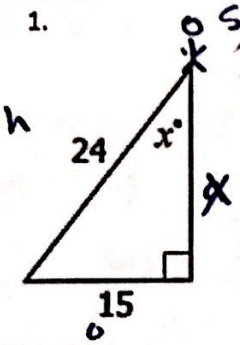
Inverse Trig Ratios & FINDING MISSING ANGLES

If you know the sin, cosine, or tangent ratio of an angle, you can use the inverse function ($\sin^{-1}$, $\cos^{-1}$, $\tan^{-1}$) to find the measure of the angle.

Make sure your calculator is in **DEGREE MODE!**

Steps	1. Label sides according to angle. SOH 2. Choose a trig ratio CAH 3. Set up a proportion TOA 4. Use inverse function on calculator

1.

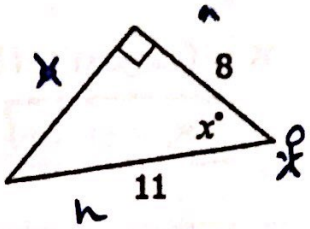


$\sin^{-1}$ $\sin(x) = \frac{15}{24}$

$x = \sin^{-1}(15/24)$

$x = 39°$

2.

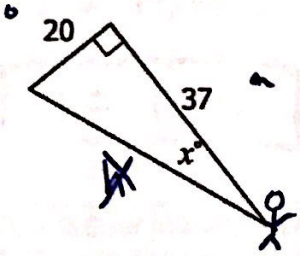


$\cos^{-1}$ $\cos(x) = 8/11$

$x = \cos^{-1}(8/11)$

$x = 43°$

3.

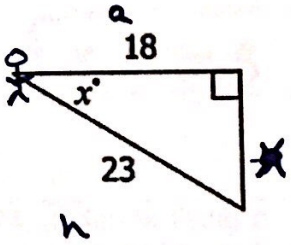


$\tan^{-1}$ $\tan(x) = 20/37$

$x = \tan^{-1}(20/37)$

$x = 28°$

4.

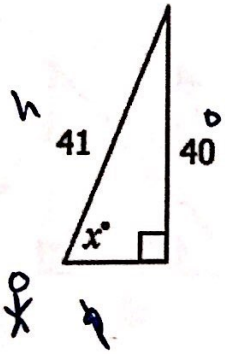


$\cos^{-1}$ $\cos(x) = 18/23$

$x = \cos^{-1}(18/23)$

$x = 38°$

5.

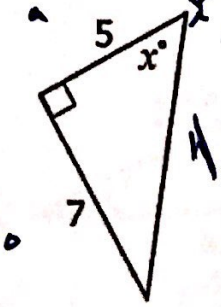


$\sin^{-1}$ $\sin(x) = 40/41$

$x = \sin^{-1}(40/41)$

$x = 77°$

6.



$\tan^{-1}$ $\tan(x) = 7/5$

$x = \tan^{-1}(7/5)$

$x = 54°$

SOH-CAH-TOA

Review: Finding Sides & Angles

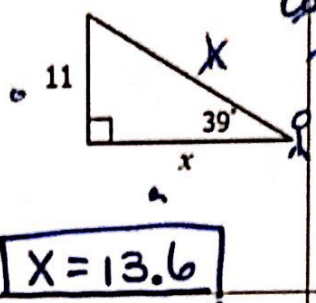
Directions: Find the value of x. Round to the nearest tenth.

7.

$\frac{\tan(39)}{1} = \frac{11}{x}$

$\frac{x\tan(39)}{\tan(39)} = \frac{11}{\tan(39)}$

$x = 13.6$

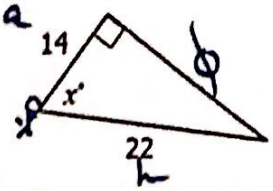


8.

$\cos(x) = \frac{14}{22}$

$x = \cos^{-1}(14/22)$

$x = 50.5°$

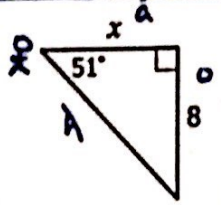


9.

$\frac{\tan(51)}{1} = \frac{8}{x}$

$\frac{x\tan(51)}{\tan(51)} = \frac{8}{\tan(51)}$

$x = 6.5$

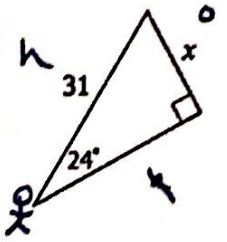


10.

$\frac{\sin(24)}{1} = \frac{x}{31}$

$31\sin(24) = x$

$12.6 = x$

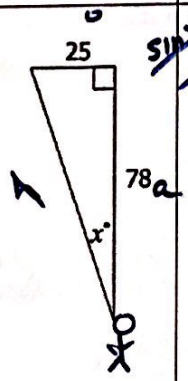


11.

$\tan(x) = 25/78$

$x = \tan^{-1}(25/78)$

$x = 17.8°$

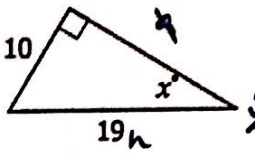


12.

$\sin(x) = 10/19$

$x = \sin^{-1}(10/19)$

$x = 31.8°$

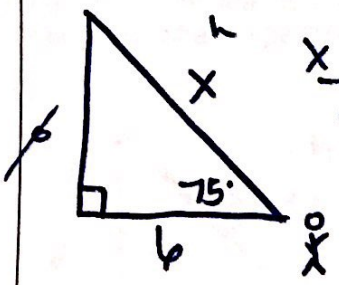


13. A ladder leaning against a wall makes an angle of 75° with the ground. If the foot of the ladder is 6 feet from the base of the wall, what is the length of the ladder?

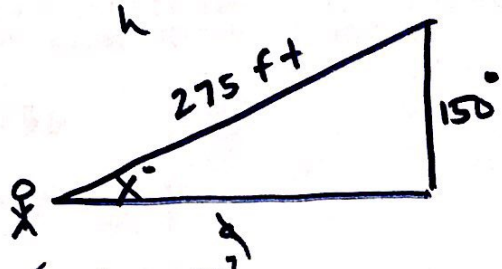
$\frac{\cos(75)}{1} = \frac{6}{x}$

$\frac{x\cos(75)}{\cos(75)} = \frac{6}{\cos(75)}$

$x = 23.2$ ft



14. Jaden is flying a kite and lets out 275 feet of string. If the kite is 150 feet above the ground and assuming the string is straight, what angle does the string make with the ground?



$\sin(x) = 150/275$

$x = \sin^{-1}(150/275)$

$x = 33.1°$