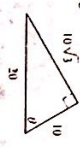


Name KEY

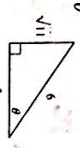
Find the value of the trig function indicated.

1) $\tan \theta$



$$\tan \theta = \frac{10\sqrt{3}}{10} = \sqrt{3}$$

2) $\cos \theta$



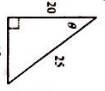
$$\cos \theta = \frac{5}{6}$$

3) $\sin \theta$



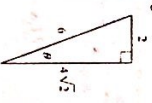
$$\sin \theta = \frac{6}{9} = \frac{2}{3}$$

4) $\tan \theta$



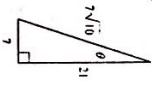
$$\tan \theta = \frac{15}{20} = \frac{3}{4}$$

5) $\sin \theta$



$$\sin \theta = \frac{2}{6} = \frac{1}{3}$$

6) $\cos \theta$



$$\cos \theta = \frac{21}{7\sqrt{10}} = \frac{3\sqrt{10}}{10}$$

7) Find $\sin \theta$ if $\tan \theta = \frac{3}{4}$

$$\sin \theta = \frac{3}{5}$$

8) Find $\tan \theta$ if $\cos \theta = \frac{4\sqrt{7}}{11}$

$$\tan \theta = \frac{3}{4\sqrt{7}} = \frac{3\sqrt{7}}{28}$$

9) Find $\sin \theta$ if $\tan \theta = \frac{4}{3}$

$$\sin \theta = \frac{4}{5}$$

10) Find $\sin \theta$ if $\cos \theta = \frac{7}{25}$

$$\sin \theta = \frac{24}{25}$$

11) Find $\cos \theta$ if $\tan \theta = \frac{5}{12}$



$$\cos \theta = \frac{12}{13}$$

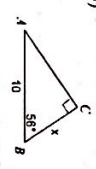
12) Find $\cos \theta$ if $\sin \theta = \frac{15}{17}$



$$\cos \theta = \frac{8}{17}$$

Find the measure of each side indicated. Round to the nearest tenth.

13)



$$x = 5.6$$

14)

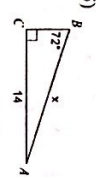


$$x = 1.2$$

$$\cos 56 = \frac{x}{10}$$

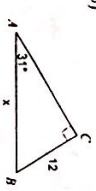
$$\tan 75 = \frac{x}{3}$$

15)



$$x = 14.7$$

16)

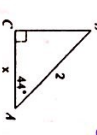


$$x = 23.3$$

$$\sin 72 = \frac{14}{x}$$

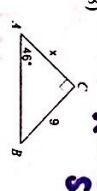
$$\sin 31 = \frac{12}{x}$$

17)



$$x = 1.4$$

18)



$$x = 8.7$$

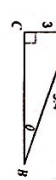
$$\cos 44 = \frac{x}{2}$$

$$\tan 46 = \frac{9}{x}$$

$$x = \frac{9}{\tan 46}$$

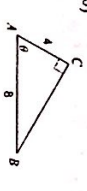
Find the measure of each angle indicated. Round to the nearest tenth.

19)



$$\theta = \sin^{-1}\left(\frac{3}{9.4}\right)$$

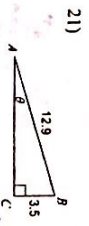
20)



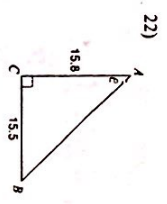
$$\theta = \cos^{-1}\left(\frac{4}{8}\right)$$

$$\theta = 18.6^\circ$$

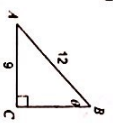
$$\theta = 60^\circ$$



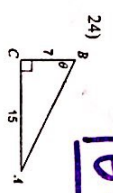
$\theta = \sin^{-1}\left(\frac{3.5}{12.9}\right)$
 $\theta = 15.7^\circ$



$\theta = \tan^{-1}\left(\frac{15.5}{15.8}\right)$
 $\theta = 44.5^\circ$

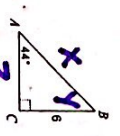


$\theta = \sin^{-1}\left(\frac{9}{12}\right)$
 $\theta = 48.6^\circ$



$\theta = \tan^{-1}\left(\frac{15}{7}\right)$
 $\theta = 65^\circ$

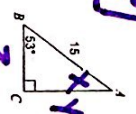
Solve each triangle. Round answers to the nearest tenth.



$y = 90 - 44 = 46^\circ$

$\tan 44 = \frac{y}{z} \Rightarrow z = \frac{y}{\tan 44}$

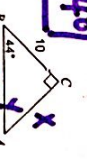
$x^2 = (y)^2 + (z)^2$
 $x = 8.6$
 $z = 6.2$



$x = 90 - 53 = 37^\circ$

$\cos 53 = \frac{z}{15} \Rightarrow z = 9$

$15^2 = y^2 + 9^2 \Rightarrow y = 12$



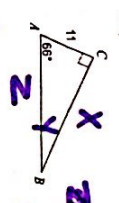
$y = 90 - 44 = 46^\circ$

$\tan 44 = \frac{y}{10} \Rightarrow y = 9.7$

$x = 3.5$

$z^2 = (10)^2 + (9.7)^2 \Rightarrow z = 13.9$

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$y = 90 - 66 = 24^\circ$

$x = 90 - 59 = 31^\circ$

$\cos 66 = \frac{11}{z} \Rightarrow z = 27$

$\sin 59 = \frac{y}{z} \Rightarrow y = 3.4$

$x^2 + 11^2 = 27^2 \Rightarrow x = 24.7$

$z = 27$

$z = 2.1$

31) A flag pole casts a shadow 14 feet long. The angle of elevation of the sun is 31° . What is the height of the flag pole?



$\tan 31 = \frac{x}{14} \Rightarrow x = 8.444$

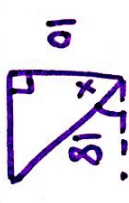
32) An airplane climbs at an angle of 23° with the ground. If the plane has traveled a ground distance of 2750 miles, how far has it moved as it climbed through the air?



$\cos 23 = \frac{2750}{x} \Rightarrow x = \frac{2750}{\cos 23}$

$x = 2987.5$

33) An 18 ft ladder is leaning against the wall of a building. If the ladder reaches 10 ft up the building, what is the angle of depression created with the building?



$x = \cos^{-1}\left(\frac{10}{18}\right)$

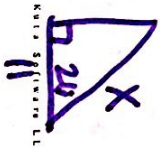
$AD = 90 - 56.3 = 33.7^\circ$

34) A lighthouse is 84 ft tall. If the angle of depression the light house keeper has to a boat in the distance is 32° , how far away is the boat from the lighthouse?



$\tan 32 = \frac{84}{x} \Rightarrow x = 134.4$

35) A ladder makes a 26° angle with the ground. How long is the ladder if the base sits 11 ft from the base of a building?



$\cos 26 = \frac{11}{x}$

$x = \frac{11}{\cos 26} = 12.2$

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