

SOL CAH TOA

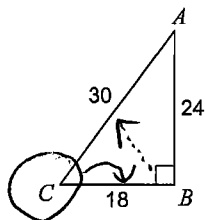
Trigonometry Introduction

Name _____

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Find the value of each trigonometric ratio to the nearest ten-thousandth.

1) $\cos C$

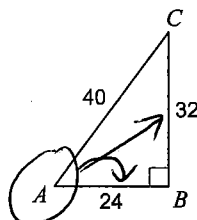


$$\cos C = \frac{A}{H}$$

$$\cos C = \frac{18}{30}$$

$$\cos C = 0.6$$

2) $\tan A$

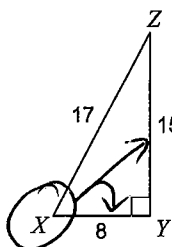


$$\tan A = \frac{O}{A}$$

$$\tan A = \frac{32}{24}$$

$$\tan A = 1.33$$

3) $\tan X$

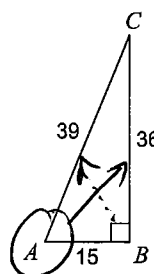


$$\tan X = \frac{O}{A}$$

$$\tan X = \frac{15}{8}$$

$$\tan X = 1.875$$

4) $\sin A$

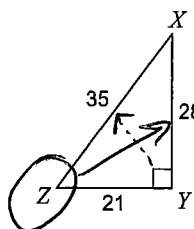


$$\sin A = \frac{O}{H}$$

$$\sin A = \frac{36}{39}$$

$$\sin A = 0.9231$$

5) $\cos Z$

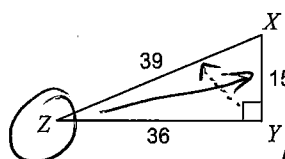


$$\cos Z = \frac{A}{H}$$

$$\cos Z = \frac{28}{35}$$

$$\cos Z = 0.6$$

6) $\sin Z$

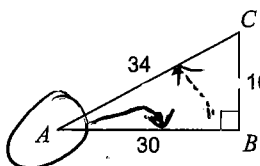


$$\sin Z = \frac{O}{H}$$

$$\sin Z = \frac{15}{39}$$

$$\sin Z = 0.3846$$

7) $\cos A$

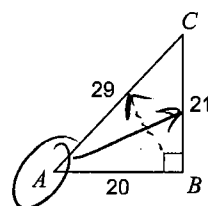


$$\cos A = \frac{A}{H}$$

$$\cos A = \frac{30}{34}$$

$$\cos A = 0.8824$$

8) $\sin A$



$$\sin A = \frac{O}{H}$$

$$\sin A = \frac{21}{29}$$

$$\sin A = 0.7241$$

9) $\cos 27^\circ$

$$0.8910$$

10) $\cos 13^\circ$

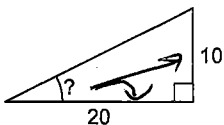
$$0.9744$$

EXCITING NEWS! YOUR PHONE WILL GIVE THE WRONG ANSWER!!

IT'S NOT TALKING IN DEGREES!
IT'S IN EITHER GRADIANS OR RADIANS!

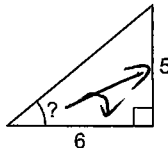
Find the measure of the indicated angle to the nearest degree.

11)



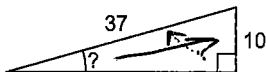
$$\begin{aligned} \tan \theta &= \frac{O}{A} \\ \tan \theta &= \frac{10}{20} \\ \theta &= \tan^{-1} \frac{10}{20} \\ \theta &= \tan^{-1}(0.5) \\ \theta &= 26.57^\circ \end{aligned}$$

12)



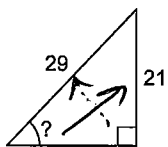
$$\begin{aligned} \tan \theta &= \frac{O}{A} \\ \tan \theta &= \frac{5}{6} \\ \theta &= \tan^{-1} \left(\frac{5}{6} \right) \\ \theta &= \tan^{-1}(0.833) \\ \theta &= 39.81^\circ \end{aligned}$$

13)



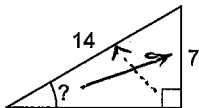
$$\begin{aligned} \sin \theta &= \frac{O}{H} \\ \sin \theta &= \frac{10}{37} \\ \theta &= \sin^{-1} \left(\frac{10}{37} \right) \\ \theta &= \sin^{-1}(0.27) \\ \theta &= 15.68^\circ \end{aligned}$$

14)



$$\begin{aligned} \sin \theta &= \frac{O}{H} \\ \sin \theta &= \frac{21}{29} \\ \theta &= \sin^{-1} \left(\frac{21}{29} \right) \\ \theta &= \sin^{-1}(.7241) \\ \theta &= 46.40^\circ \end{aligned}$$

15)



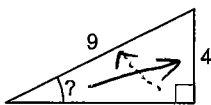
$$\begin{aligned} \sin \theta &= \frac{O}{H} \\ \sin \theta &= \frac{7}{14} \\ \theta &= \sin^{-1} \left(\frac{7}{14} \right) \\ \theta &= \sin^{-1}(0.5) \\ \theta &= 30^\circ \end{aligned}$$

16)



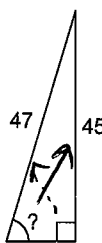
$$\begin{aligned} \cos \theta &= \frac{A}{H} \\ \cos \theta &= \frac{8}{22} \\ \theta &= \cos^{-1} \left(\frac{8}{22} \right) \\ \theta &= \cos^{-1}(0.3636) \\ \theta &= 68.68^\circ \end{aligned}$$

17)



$$\begin{aligned} \sin \theta &= \frac{O}{H} \\ \sin \theta &= \frac{4}{9} \\ \theta &= \sin^{-1} \left(\frac{4}{9} \right) \\ \theta &= \sin^{-1}(0.4444) \\ \theta &= 26.39^\circ \end{aligned}$$

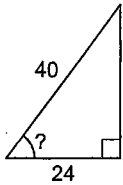
18)



$$\begin{aligned} \sin \theta &= \frac{O}{H} \\ \sin \theta &= \frac{45}{47} \\ \theta &= \sin^{-1} \left(\frac{45}{47} \right) \\ \theta &= \sin^{-1}(0.9574) \\ \theta &= 73.23^\circ \end{aligned}$$

- Pick ONE -

19)



$$\sin \theta = \frac{O}{H} \quad \cos \theta = \frac{A}{H} \quad \tan \theta = \frac{O}{A} \quad 20)$$

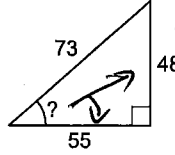
$$\sin \theta = \frac{32}{40} \quad \cos \theta = \frac{24}{40} \quad \tan \theta = \frac{32}{24}$$

$$\theta = \sin^{-1}\left(\frac{32}{40}\right) \quad \theta = \cos^{-1}\left(\frac{24}{40}\right) \quad \theta = \tan^{-1}\left(\frac{32}{24}\right)$$

$$\theta = \sin^{-1}(0.8) \quad \theta = \cos^{-1}(0.6) \quad \theta = \tan^{-1}(1.333)$$

$$\theta = 53.13^\circ \quad \theta = 53.13^\circ \quad \theta = 53.13^\circ$$

Doesn't matter what you pick.



I LIKE TANGENT

$$\tan \theta = \frac{O}{A}$$

$$\tan \theta = \frac{48}{55}$$

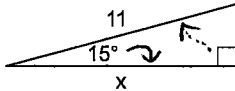
$$\theta = \tan^{-1}\left(\frac{48}{55}\right)$$

$$\theta = \tan^{-1}(0.8727)$$

$$\theta = 41.11^\circ$$

Find the missing side. Round to the nearest tenth.

21)



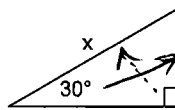
$$\cos \theta = \frac{A}{H}$$

$$\cos(15) = \frac{x}{11}$$

$$(11) \cos(15) = x$$

$$10.63 = x$$

22)



$$\sin \theta = \frac{O}{H}$$

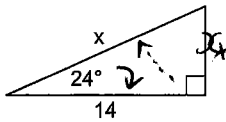
$$19x \sin(30) = \frac{19}{x} \times x$$

$$\frac{x \sin(30)}{\sin(30)} = \frac{19}{\sin(30)}$$

$$x = \frac{19}{\sin(30)}$$

$$x = 38$$

23)



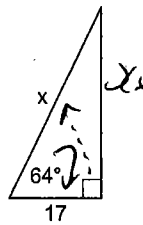
$$\cos \theta = \frac{A}{H}$$

$$\cos(24) = \frac{14}{x}$$

$$\frac{x \cos(24)}{\cos(24)} = \frac{14}{\cos(24)}$$

$$x = 15.33$$

24)



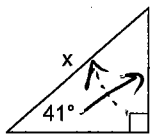
$$\cos \theta = \frac{A}{H}$$

$$\cos(64) = \frac{17}{x}$$

$$\frac{x \cos(64)}{\cos(64)} = \frac{17}{\cos(64)}$$

$$x = 38.78$$

25)



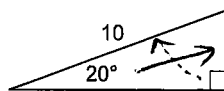
$$\sin \theta = \frac{O}{H}$$

$$\sin(41) = \frac{16}{x}$$

$$\frac{x \sin(41)}{\sin(41)} = \frac{16}{\sin(41)}$$

$$x = 24.39$$

26)



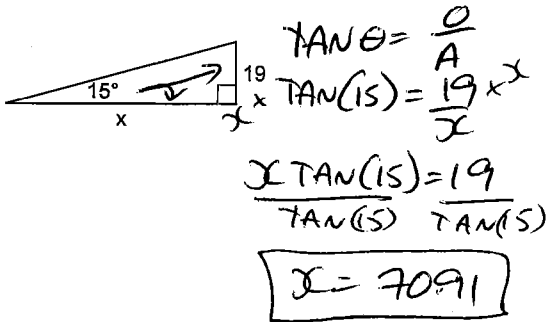
$$\sin \theta = \frac{O}{H}$$

$$\sin(20) = \frac{x}{10}$$

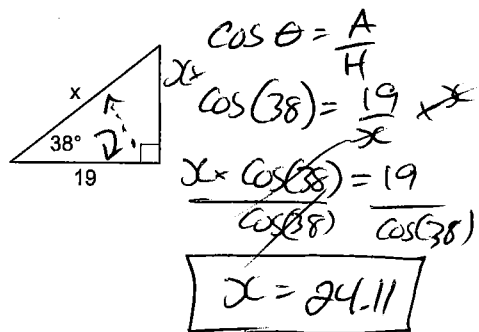
$$10 \cdot \sin(20) = x$$

$$3.42 = x$$

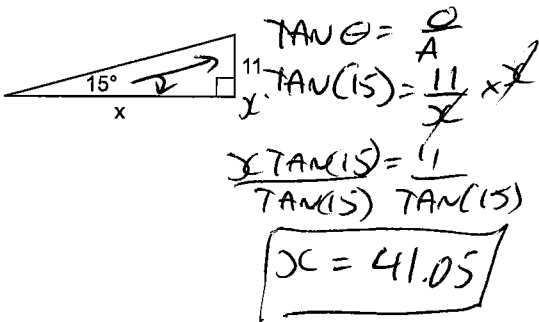
27)



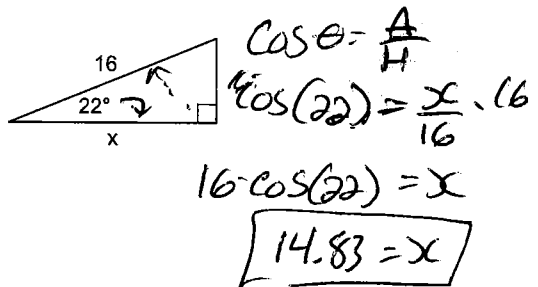
28)



29)



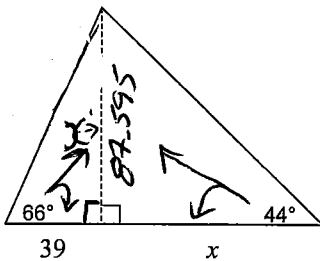
30)



Find the length of the side labeled x . Round intermediate values to the nearest tenth. Use the rounded values to calculate the next value. Round your final answer to the nearest tenth.

31)

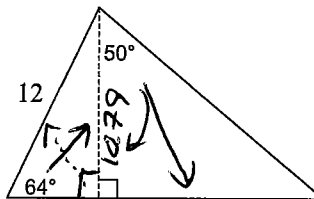
TWO TRIANGLES



$TAN \theta = \frac{O}{A}$
 $39 \cdot TAN(66) = \frac{x}{39} \cdot 39$
 $39 \cdot TAN(66) = x$
 $87.595 = x$
 ①

$TAN \theta = \frac{O}{A}$
 $x \cdot TAN(44) = \frac{87.595}{x} \cdot x$
 $x \cdot TAN(44) = 87.595$
 $\frac{x \cdot TAN(44)}{TAN(44)} = \frac{87.595}{TAN(44)}$
 $x = 90.71$
 ②

32)



$SIN \theta = \frac{O}{H}$
 $12 \cdot SIN(64) = \frac{x}{12} \cdot 12$
 $12 \cdot SIN(64) = x$
 $10.79 = x$
 ①

$TAN \theta = \frac{O}{A}$
 $10.79 \cdot TAN(50) = \frac{x}{10.79} \cdot 10.79$
 $10.79 \cdot TAN(50) = x$
 $12.85 = x$
 ②