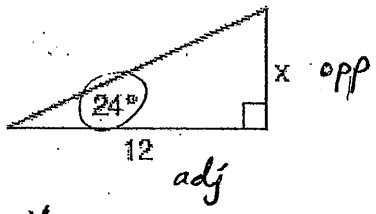
SOH-CAH-TOA

$$Sin\ \angle A = \frac{Opp}{Hyp} \qquad Cos\ \angle A = \frac{Adj}{Hyp} \qquad Tan\ \angle A = \frac{Opp}{Adj}$$

Find the value of each variable using trigonometric ratios.

1.

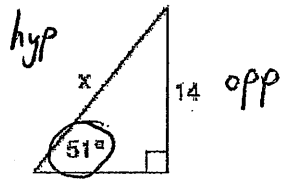


$$\frac{\tan 24}{1} = \frac{x}{12}$$

$$x = 12\tan 24$$

$$\boxed{x = 5.34}$$

2.



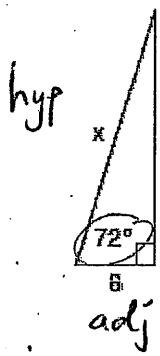
$$\frac{\sin 51}{1} = \frac{14}{x}$$

$$\frac{x\sin 51}{\sin 51} = \frac{14}{\sin 51}$$

$$x = \frac{14}{\sin 51}$$

$$\boxed{x = 18.01}$$

3.



$$\frac{\cos 72}{1} = \frac{6}{x}$$

$$x\cos 72 = 6$$

$$\frac{x\cos 72}{\cos 72} = \frac{6}{\cos 72}$$

$$\boxed{x = 19.42}$$

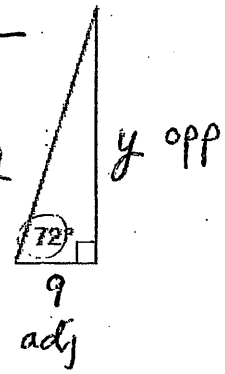
4.

$$\frac{\tan 72}{1} = \frac{y}{9}$$

$$y = 9\tan 72$$

27.69

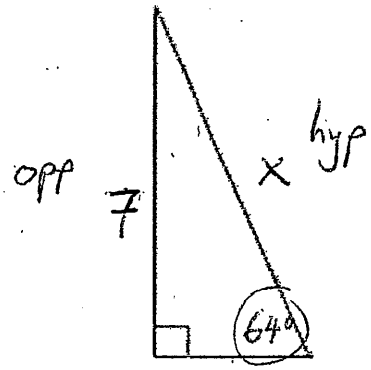
$$\boxed{y = 27.70}$$



SOH-CAH-TOA $\quad Sin\ \angle A = \frac{Opp}{Hyp} \quad Cos\ \angle A = \frac{Adj}{Hyp} \quad Tan\ \angle A = \frac{Opp}{Adj}$

Find the value of each variable using trigonometric ratios.

5.



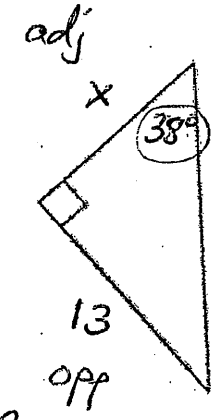
$\frac{\sin 64}{1} = \frac{7}{x}$

$x \sin 64 = 7$

$x = \frac{7}{\sin 64}$

$\boxed{x = 7.79}$

6.



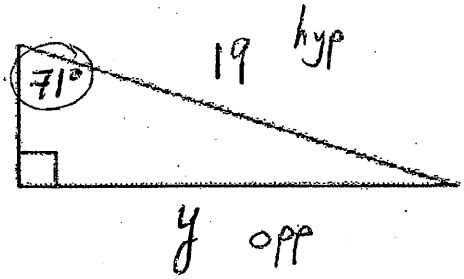
$\frac{\tan 38}{1} = \frac{13}{x}$

$x \tan 38 = 13$

$x = \frac{13}{\tan 38}$

$\boxed{x = 16.64}$

7.

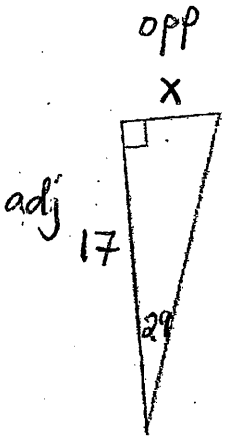


$\frac{\sin 71}{1} = \frac{y}{19}$

$y = 19 \sin 71$

$\boxed{y = 17.96}$

8.



$\frac{\tan 29}{1} = \frac{x}{17}$

$x = 17 \tan 29$

$\boxed{x = 9.42}$

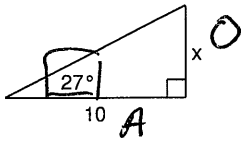
Kuta Software - Infinite Algebra 1 $S\frac{O}{H}\ C\frac{A}{H}\ T\frac{O}{A}$ Name Key

Using Trigonometry To Find Lengths

Date_____ Period____

Find the missing side. Round to the nearest tenth.

1)



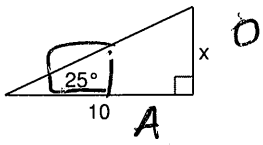
5.1

$\frac{\tan 27}{1} = \frac{x}{10}$

$x = 10 \tan 27$

$\boxed{x = 5.09}$

2)



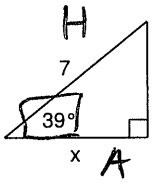
4.7

$\frac{\tan 25}{1} = \frac{x}{10}$

$x = 10 \tan 25$

$\boxed{x = 4.663}$

3)



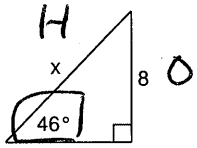
5.4

$\frac{\cos 39}{1} = \frac{x}{7}$

$x = 7 \cos 39$

$\boxed{x = 5.44}$

4)



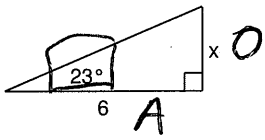
11.1

$\frac{\sin 46}{1} = \frac{8}{x}$

$\frac{x \sin 46}{\sin 46} = \frac{8}{\sin 46}$

$x = \frac{8}{\sin 46} = \boxed{11.121}$

5)



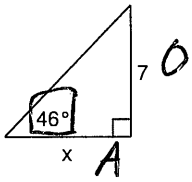
2.5

$\frac{\tan 23}{1} = \frac{x}{6}$

$x = 6 \tan 23$

$\boxed{x = 2.547}$

6)



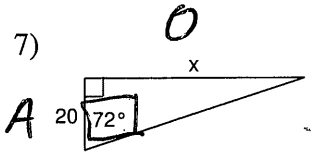
6.8

$\frac{\tan 46}{1} = \frac{7}{x}$

$\frac{x \tan 46}{\tan 46} = \frac{7}{\tan 46}$

$\boxed{x = 6.759}$

7)



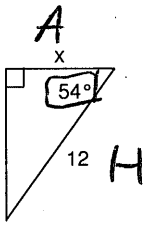
61.6

$\frac{\tan 72}{1} = \frac{x}{20}$

$x = 20 \tan 72$

$\boxed{x = 61.554}$

8)



7.1

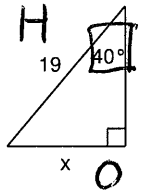
$\frac{\cos 54}{1} = \frac{x}{12}$

$x = 12 \cos 54$

$\boxed{x = 7.053}$

SOH CAH TOA

9)



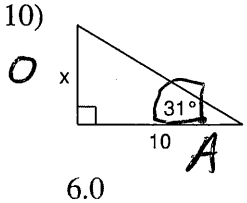
12.2

$\frac{\sin 40}{1} = \frac{x}{19}$

$x = 19 \sin 40$

$\boxed{x = 12.213}$

10)



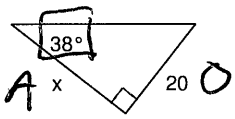
6.0

$\frac{\tan 31}{1} = \frac{x}{10}$

$x = 10 \tan 31$

$\boxed{x = 6.009}$

11)



25.6

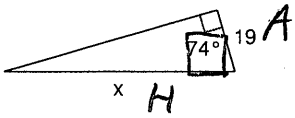
$\frac{\tan 38}{1} = \frac{20}{x}$

$x \tan 38 = 20$

$x = \frac{20}{\tan 38}$

$\boxed{x = 25.599}$

12)



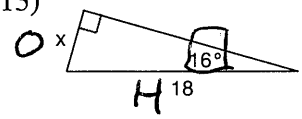
68.9

$\frac{\cos 74}{1} = \frac{19}{x}$

$x \cos 74 = 19$

$\boxed{x = \frac{19}{\cos 74} = 68.931}$

13)



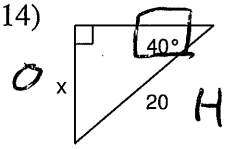
5.0

$\sin 16 = \frac{x}{18}$

$x = 18 \sin 16$

$\boxed{x = 4.961}$

14)



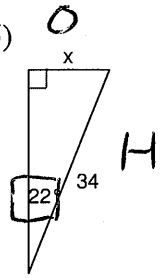
12.9

$\sin 40 = \frac{x}{20}$

$x = 20 \sin 40$

$\boxed{x = 12.8558}$

15)



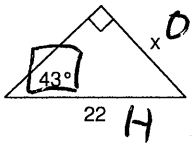
12.7

$\sin 22 = \frac{x}{34}$

$x = 34 \sin 22$

$\boxed{x = 12.737}$

16)



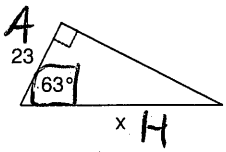
15.0

$\sin 43 = \frac{x}{22}$

$x = 22 \sin 43$

$\boxed{x = 15.004}$

17)



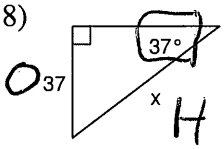
50.7

$\cos 63 = \frac{23}{x}$

$x = \frac{23}{\cos 63}$

$\boxed{x = 50.662}$

18)



61.5

$\sin 37 = \frac{37}{x}$

$x = \frac{37}{\sin 37}$

$\boxed{x = 61.481}$

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