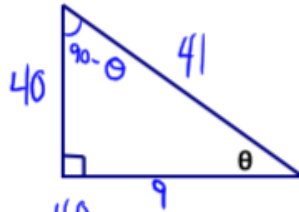


1. Given the following trigonometric values, label the triangle's sides and fill in the blanks.

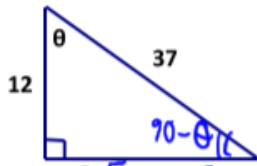
$\sin \theta = \frac{40 \text{ opp}}{41 \text{ hyp}}$ $\tan \theta = \frac{40 \text{ opp}}{9 \text{ adj}}$

$\cos \theta = \frac{9}{41}$



$\sin(90-\theta) = \frac{9}{41}$ $\cos(90-\theta) = \frac{40}{41}$ $\tan(90-\theta) = \frac{9}{40}$

2. Given the triangle below, find the length missing side. Then answer the questions about the triangle.



Missing side length = 35

$12^2 + b^2 = 37^2$
 $144 + b^2 = 1369$
 $b^2 = 1225$
 $b = 35$

$\sin \theta = \frac{12}{37}$

$\cos(90-\theta) = \frac{35}{37}$

$\cos \theta = \frac{35}{37}$

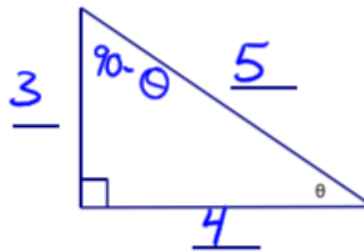
$\frac{\sin \theta}{\cos \theta} = \frac{\frac{12}{37}}{\frac{35}{37}} = \frac{12}{35}$ $\tan(90-\theta) = \frac{12}{35}$

3. Given the $\sin \theta = \frac{3 \text{ opp}}{5 \text{ hyp}}$, label the picture.

Missing side length = 4

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

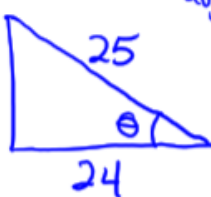
$\sin(90-\theta) = \frac{4}{5}$



$3^2 + b^2 = 5^2$
 $9 + b^2 = 25$
 $b^2 = 16$
 $b = 4$

4. Given $\tan \theta = \frac{7 \text{ opp}}{24 \text{ adj}}$, draw a right triangle and find $\sin \theta$ & $\cos \theta$.

Find missing side
 $7^2 + 24^2 = c^2$
 $49 + 576 = c^2$
 $625 = c^2$
 $25 = c$



$\sin \theta = \frac{7}{25}$ $\cos \theta = \frac{24}{25}$

5. Given $\sin \theta = \frac{8 \text{ opp}}{17 \text{ hyp}}$

$\cos \theta = \frac{15}{17}$

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

$\sin(90-\theta) = \frac{15}{17}$

$\cos(90-\theta) = \frac{8}{17}$

$\tan(90-\theta) = \frac{15}{8}$

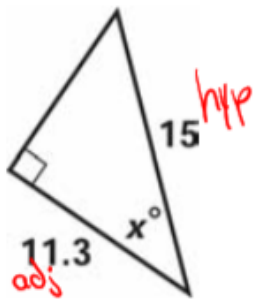


$8^2 + b^2 = 17^2$
 $64 + b^2 = 289$
 $b^2 = 225$
 $b = 15$

Inverse Trigonometry

Find measure of the indicated angle. Round to the 3rd decimal place.

1.

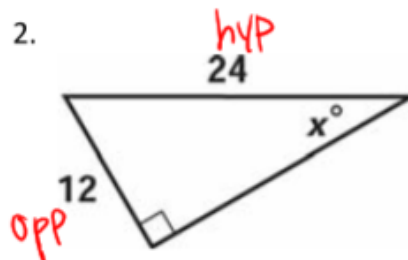


$$x = \frac{48.880}{\cos(x)}$$

$$\cos(x) = \frac{11.3}{15}$$

$$x = \cos^{-1}\left(\frac{11.3}{15}\right) = 48.880$$

2.

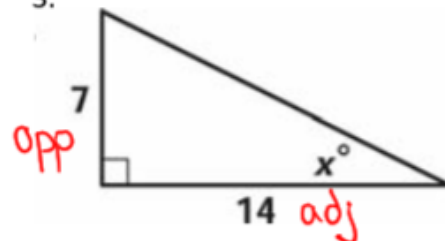


$$x = \frac{30}{\sin(x)}$$

$$\sin(x) = \frac{12}{24}$$

$$x = \sin^{-1}\left(\frac{12}{24}\right) = 30$$

3.

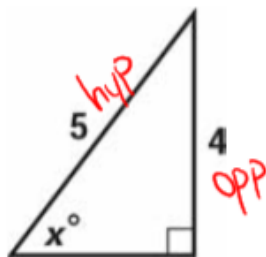


$$x = \frac{26.565}{\tan(x)}$$

$$\tan(x) = \frac{7}{14}$$

$$x = \tan^{-1}\left(\frac{7}{14}\right) = 26.565$$

4.



$$x = \frac{53.130}{\sin(x)}$$

$$\sin(x) = \frac{4}{5}$$

$$x = \sin^{-1}\left(\frac{4}{5}\right) = 53.130$$

5.

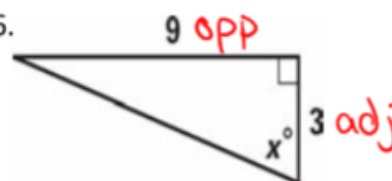


$$x = \frac{26.766}{\cos(x)}$$

$$\cos(x) = \frac{25}{28}$$

$$x = \cos^{-1}\left(\frac{25}{28}\right) = 26.766$$

6.

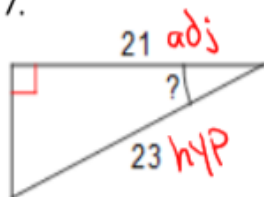


$$x = \frac{71.565}{\tan(x)}$$

$$\tan(x) = \frac{9}{3}$$

$$x = \tan^{-1}\left(\frac{9}{3}\right) = 71.565$$

7.

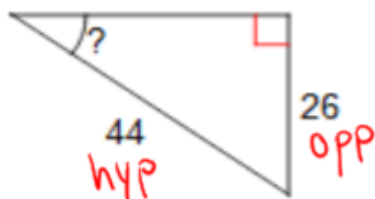


$$\cos(?) = \frac{21}{23}$$

$$? = \cos^{-1}\left(\frac{21}{23}\right)$$

$$? = 24.071$$

8.

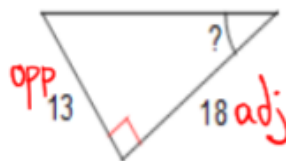


$$\sin(?) = \frac{26}{44}$$

$$? = \sin^{-1}\left(\frac{26}{44}\right)$$

$$? = 36.222$$

9.



$$\tan(?) = \frac{13}{18}$$

$$? = \tan^{-1}\left(\frac{13}{18}\right)$$

$$? = 35.838$$