

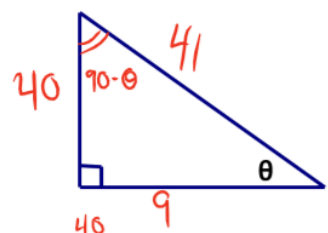
S O H C A T O A

Name Key Date _____ Block _____ Right Triangle Trig.

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

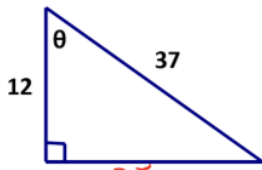
$\sin \theta = \frac{40^{\text{opp}}}{41^{\text{hyp}}}$ $\tan \theta = \frac{40^{\text{opp}}}{9^{\text{adj}}}$

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



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

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



Missing side length = 35

Pyth. Thm.
 $12^2 + x^2 = 37^2$
 $144 + x^2 = 1369$
 -144 -144
 $\sqrt{x^2} = \sqrt{1225}$
 $x = 35$

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

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

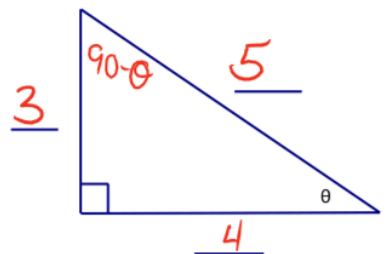
$\cos \theta = \frac{35}{37}$

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

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

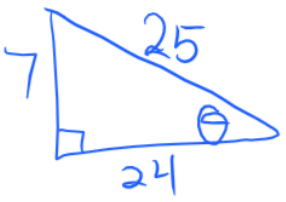
Missing side length = 4

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



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

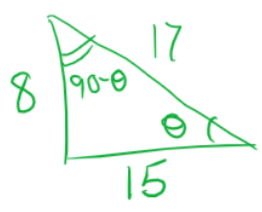
4. Given $\tan \theta = \frac{7^{\text{opp}}}{24^{\text{adj}}}$, draw a right triangle and find $\sin \theta$ & $\cos \theta$.



$7^2 + 24^2 = x^2$
 $49 + 576 = x^2$
 $625 = x^2$
 $25 = x$

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

5. Given $\sin \theta = \frac{8^{\text{opp}}}{17^{\text{hyp}}}$ $\cos \theta = \frac{15}{17}$ $\tan \theta = \frac{8}{15}$
 $\sin(90-\theta) = \frac{15}{17}$ $\cos(90-\theta) = \frac{8}{17}$
 $\tan(90-\theta) = \frac{15}{8}$



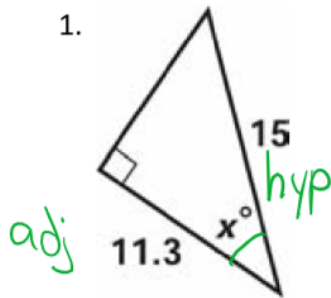
$8^2 + x^2 = 17^2$
 $64 + x^2 = 289$
 $x^2 = 225$
 $x = 15$

Inverse Trigonometry

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

S O I A C A T O A

1.



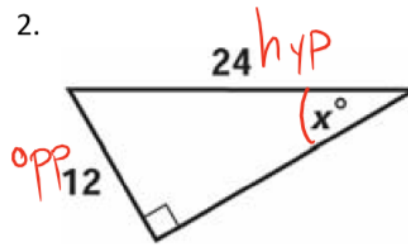
$$x = 41.120^\circ$$

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

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

$$x = 41.120^\circ$$

2.



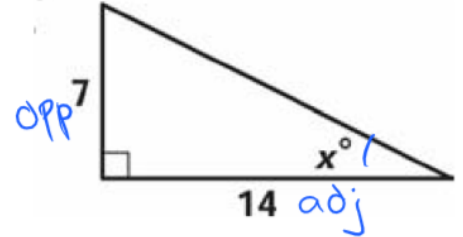
$$x = 30.000^\circ$$

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

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

$$x = 30^\circ$$

3.



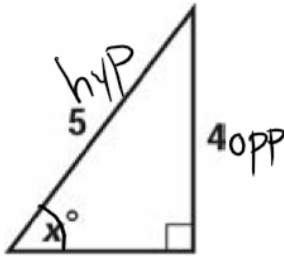
$$x = 26.565^\circ$$

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

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

$$x = 26.565^\circ$$

4.



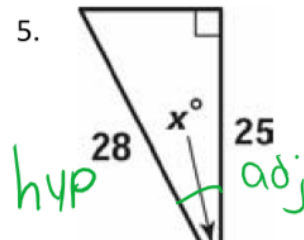
$$x = 53.130^\circ$$

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

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

$$x = 53.130^\circ$$

5.



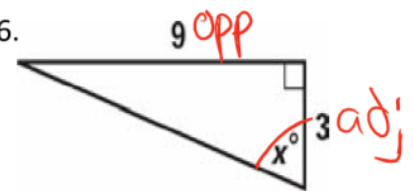
$$x = 26.766^\circ$$

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

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

$$x = 26.766^\circ$$

6.



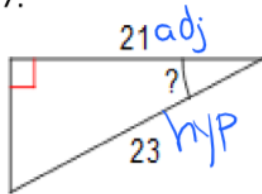
$$x = 71.565^\circ$$

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

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

$$x = 71.565^\circ$$

7.

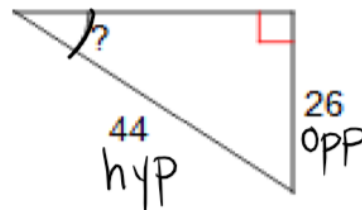


$$\cos(?) = \frac{21}{23}$$

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

$$? = 24.071^\circ$$

8.

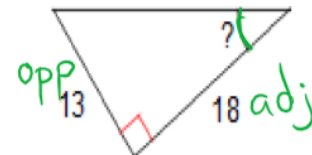


$$\sin(?) = \frac{26}{44}$$

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

$$? = 36.222^\circ$$

9.



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

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

$$? = 35.838^\circ$$