

Trigonometry of Right Triangles Notes

Find the value of each. Round your answers to the nearest ten-thousandth.

1) $\sin 28^\circ$

4695

2) $\cos 80^\circ$

1736

Find each angle measure to the nearest degree.

3) $\cos W = 0.5878$

$\cos^{-1} \cos W = \cos^{-1}(0.5878)$

$W = 54^\circ$

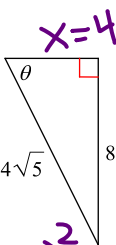
4) $\tan X = 0.4452$

$X = \tan^{-1}(0.4452)$

$X = 24^\circ$

Find the value of the trig function indicated.

5) $\tan \theta$



$\tan \theta = \frac{8}{4}$

$\tan \theta = 2$

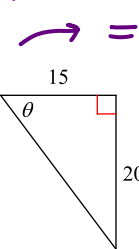
$x^2 + 8^2 = (4\sqrt{5})^2$

$x^2 + 64 = 165$

$x^2 + 64 = 80$

$x^2 = 16 \rightarrow x = 4$

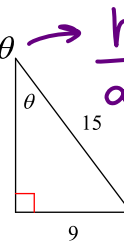
7) $\cot \theta$



$\cot \theta = \frac{\text{adj}}{\text{opp}}$

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

6) $\sec \theta$



$\sec \theta = \frac{\text{hyp}}{\text{adj}}$

$\sec \theta = \frac{x}{9}$

$\sec \theta = \frac{15}{x} = \frac{15}{12}$

$= \frac{5}{4}$

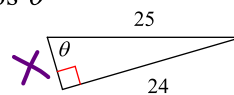
$x^2 + 9^2 = 15^2$

$x^2 + 81 = 225$

$x^2 = 144$

$x = 12$

8) $\cos \theta$



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

$x^2 + 24^2 = 25^2$

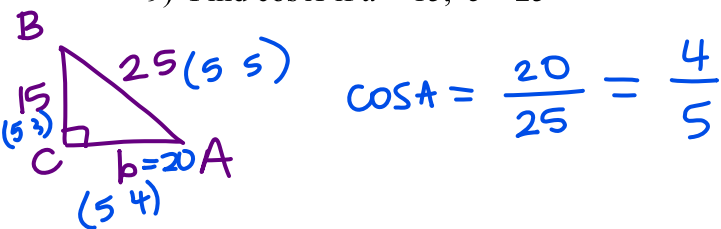
$x^2 + 576 = 625$

$x^2 = 49$

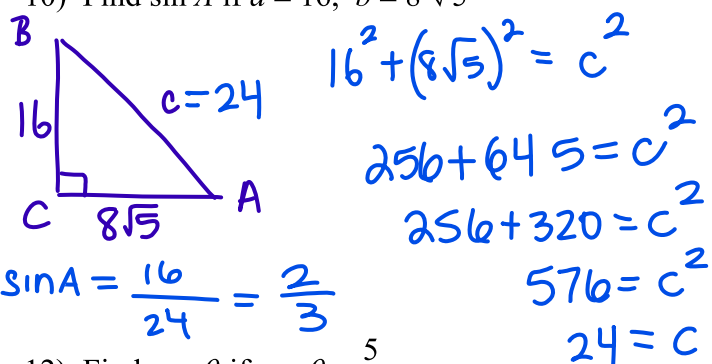
$x = 7$

In each triangle ABC, angle C is a right angle. Find the value of the trig function indicated.

9) Find $\cos A$ if $a = 15$, $c = 25$



10) Find $\sin A$ if $a = 16$, $b = 8\sqrt{5}$

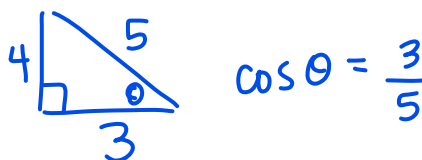


Find the value of the trig function indicated.

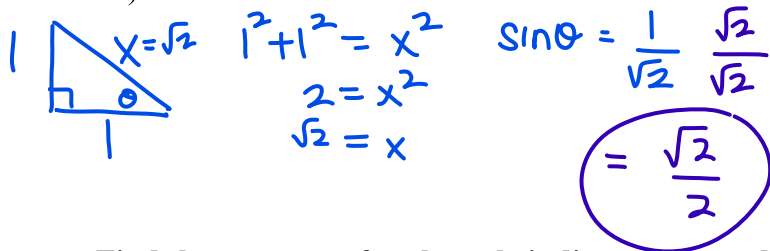
11) Find $\cot \theta$ if $\sec \theta = \frac{5}{3}$



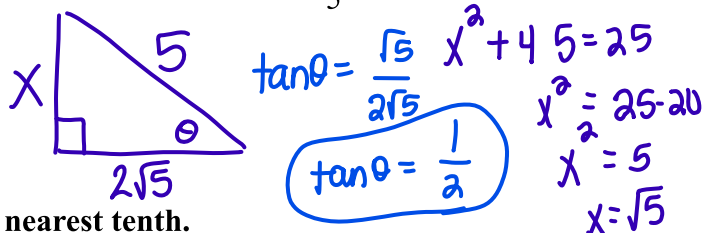
12) Find $\cos \theta$ if $\csc \theta = \frac{5}{4}$



13) Find $\sin \theta$ if $\tan \theta = 1$

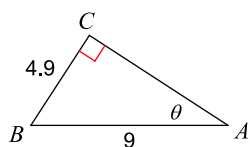


14) Find $\tan \theta$ if $\cos \theta = \frac{2\sqrt{5}}{5}$



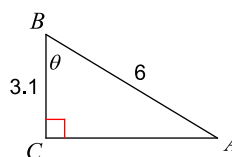
Find the measure of each angle indicated. Round to the nearest tenth.

15)



Handwritten solution: $\sin \theta = \frac{4.9}{9}$
 $\theta = \sin^{-1}\left(\frac{4.9}{9}\right)$
 $\theta = 33.0^\circ$

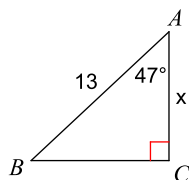
16)



Handwritten solution: $\cos \theta = \frac{3.1}{6}$
 $\theta = \cos^{-1}\left(\frac{3.1}{6}\right)$
 $\theta = 58.9^\circ$

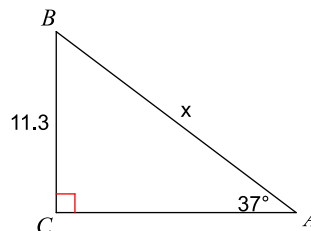
Find the measure of each side indicated. Round to the nearest tenth.

17)



Handwritten solution: $\cos 47^\circ = \frac{x}{13}$
 $x = 13 \cos 47^\circ$
 $x = 8.9$

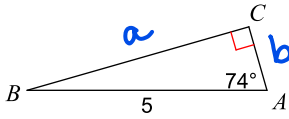
18)



Handwritten solution: $\sin 37^\circ = \frac{11.3}{x}$
 $x = \frac{11.3}{\sin 37^\circ} = 18.8$

Solve each triangle. Round answers to the nearest tenth.

19)



$$\angle B = 16^\circ$$

$$\cos 74^\circ = \frac{b}{5}$$

$$5 \cos 74^\circ = b$$

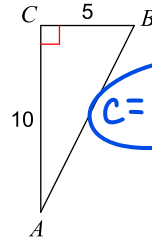
$$1.4 = b$$

$$\sin 74^\circ = \frac{a}{5}$$

$$5 \sin 74^\circ = a$$

$$4.8 = a$$

20)



$$c = 5\sqrt{5}$$

$$5^2 + 10^2 = c^2$$

$$25 + 100 = c^2$$

$$125 = c^2$$

$$\sqrt{125} = \sqrt{c^2}$$

$$5\sqrt{5} = c$$

$$\tan A = \frac{5}{10}$$

$$A = \tan^{-1}\left(\frac{5}{10}\right) = 26.6^\circ = \angle A$$

$$\angle B = 63.4^\circ$$

In each problem, angle C is a right angle. Solve each triangle rounding answers to the nearest tenth.

21) $c = 4$, $m\angle B = 68^\circ$

22) $c = 14$, $b = 8$

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Find each angle measure to the nearest degree.

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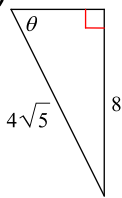
 54°

4) $\tan X = 0.4452$

 24°

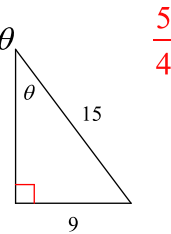
Find the value of the trig function indicated.

5) $\tan \theta$

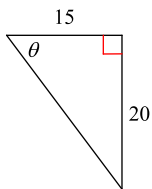


2

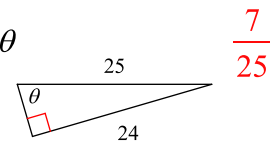
6) $\sec \theta$

 $\frac{5}{4}$

7) $\cot \theta$

 $\frac{3}{4}$

8) $\cos \theta$

 $\frac{7}{25}$

In each triangle ABC, angle C is a right angle. Find the value of the trig function indicated.

9) Find $\cos A$ if $a = 15$, $c = 25$

$$\frac{4}{5}$$

10) Find $\sin A$ if $a = 16$, $b = 8\sqrt{5}$ $\frac{2}{3}$

Find the value of the trig function indicated.

11) Find $\cot \theta$ if $\sec \theta = \frac{5}{3}$

$$\frac{3}{4}$$

12) Find $\cos \theta$ if $\csc \theta = \frac{5}{4}$ $\frac{3}{5}$

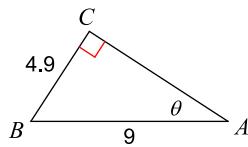
13) Find $\sin \theta$ if $\tan \theta = 1$

$$\frac{\sqrt{2}}{2}$$

14) Find $\tan \theta$ if $\cos \theta = \frac{2\sqrt{5}}{5}$ $\frac{1}{2}$

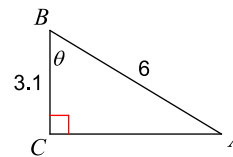
Find the measure of each angle indicated. Round to the nearest tenth.

15)



$$33^\circ$$

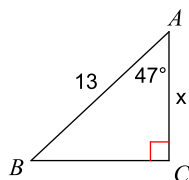
16)



$$58.9^\circ$$

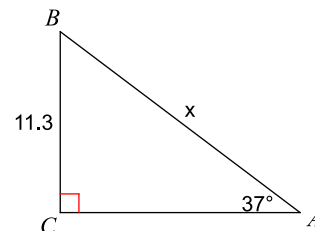
Find the measure of each side indicated. Round to the nearest tenth.

17)



$$8.9$$

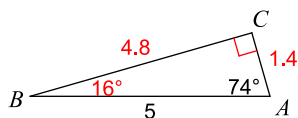
18)



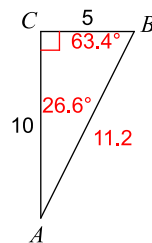
$$18.8$$

Solve each triangle. Round answers to the nearest tenth.

19)



20)



In each problem, angle C is a right angle. Solve each triangle rounding answers to the nearest tenth.

21) $c = 4$, $m\angle B = 68^\circ$

$m\angle A = 22^\circ$, $b = 3.7$, $a = 1.5$

22) $c = 14$, $b = 8$

$m\angle B = 34.8^\circ$, $m\angle A = 55.2^\circ$, $a = 11.5$