

Math 125 Chapter 6/Sections: 6-3 Topic: Solving Right Triangles, Worksheet

Definition: A triangle with an interior angle of $\theta = \underline{\hspace{2cm}}$ is a right triangle. Often it is represented with a \square

Complete the following **Trigonometric Ratio Table** in terms of **a, b, c** & **Right Triangle Ratio Table** in terms of **Hyp. Opp., Adj.** :

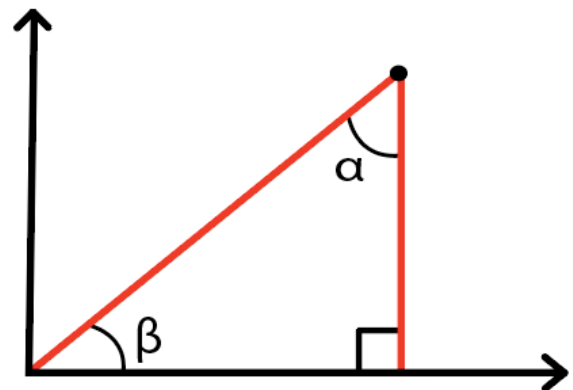
Trigonometric Ratios

$\sin \theta =$	$\csc \theta =$
$\cos \theta =$	$\sec \theta =$
$\tan \theta =$	$\cot \theta =$

Right Triangle Ratios

$\sin \theta =$	$\csc \theta =$
$\cos \theta =$	$\sec \theta =$
$\tan \theta =$	$\cot \theta =$

$\alpha + \beta = 90^\circ$	
Let $\alpha = 32.5^\circ$	$\underline{\hspace{2cm}} + \beta = 90^\circ$
Solve for β	



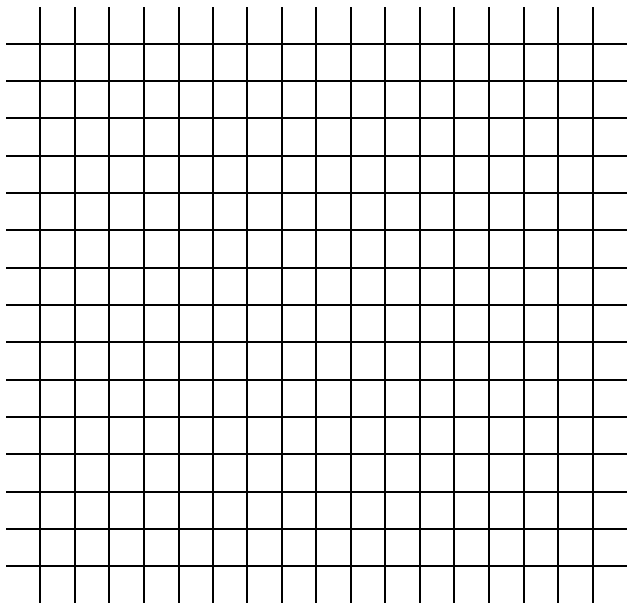
Find θ given and show your work if needed:

$\sin \theta = 0.122$	$\tan \theta = 0.3145$
$\theta = \cos^{-1}(0.4196)$	$\theta = \tan^{-1}(0.5192)$

Given a right triangle, $a = 4.32$ cms. and $c = 9.81$ cms. Compute the angle measures to three decimal places.

Find the angle measures to two decimal places of the acute angle between the given line,

$y = \frac{1}{2}x + 2$, and the x-axis.



Math 125 Chapter 6/Sections: 6-3 Topic: Solving Right Triangles, Worksheet **SOLUTION**

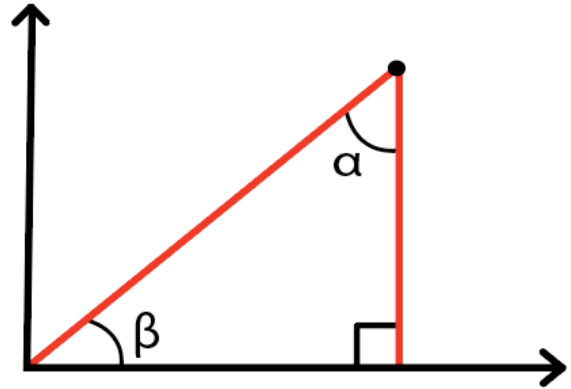
Definition: A triangle with an interior angle of $\theta = \underline{90}$ is a right triangle. Often it is represented with a \square

Complete the following **Trigonometric Ratio Table** in terms of **a, b, c** & **Right Triangle Ratio Table** in terms of **Hyp. Opp., Adj.** :

<u>Trigonometric Ratios</u>		<u>Right Triangle Ratios</u>	
$\sin \theta = b/c$	$\csc \theta = c/b$	$\sin \theta = \text{Opp./Hyp}$	$\csc \theta = \text{Hyp./Opp.}$
$\cos \theta = a/c$	$\sec \theta = c/a$	$\cos \theta = \text{Adj./Hyp}$	$\sec \theta = \text{Hyp./Adj.}$
$\tan \theta = b/a$	$\cot \theta = a/b$	$\tan \theta = \text{Opp./Adj.}$	$\cot \theta = \text{Adj./Opp}$

$\alpha + \beta = 90^\circ$	
Let $\alpha = 32.5^\circ$	$\underline{\hspace{1cm}} + \beta = 90^\circ$

Solve for β	$\beta = 90^\circ - 32.5^\circ$ $= 57.5^\circ$
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Find θ given and show your work if needed:

$\sin \theta = 0.122$ 7.008	$\tan \theta = 0.3145$ 17.458
$\theta = \cos^{-1}(0.4196)$ 65.191	$\theta = \tan^{-1}(0.5192)$ 27.438

Given a right triangle, $a = 4.32$ cms. and $c = 9.81$ cms. Compute the angle measures to three decimal places and find b .

$$\cos \beta = \frac{4.32}{9.81}$$

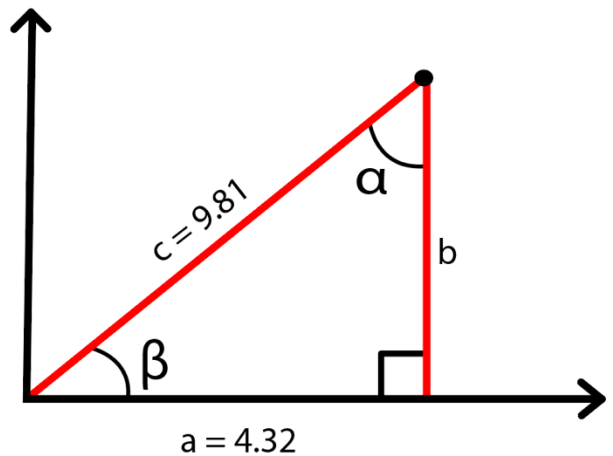
$$\beta = \cos^{-1} \frac{4.32}{9.81}$$

$$\beta = 63.872702^\circ$$

$$\alpha = 90^\circ - 63.872702^\circ = 26.127^\circ$$

$$\tan 63.873^\circ = \frac{b}{4.32}$$

$$b = 4.32 (\tan 63.873^\circ) = 8.81$$



Find the angle measures to two decimal places of the acute angle between the given line,
 $y = \frac{1}{2}x + 2$, and the x-axis.

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

$$\beta = \tan^{-1} \frac{5}{10}$$

$$\beta = 26.57$$

