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

Definition: A triangle with an interior angle of $\theta =$ _____ is a right triangle. Often it is represented with a ☐

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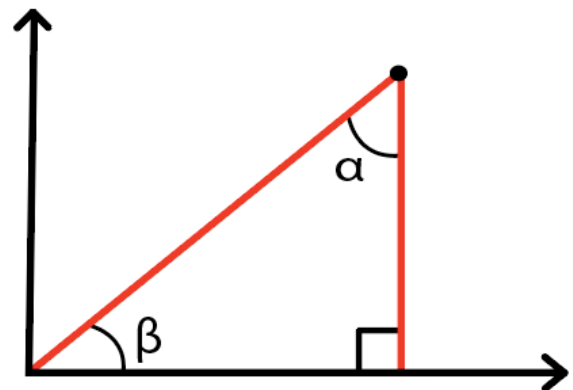

<u>**Trigonometric Ratios**</u>

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

<u>**Right Triangle Ratios**</u>

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

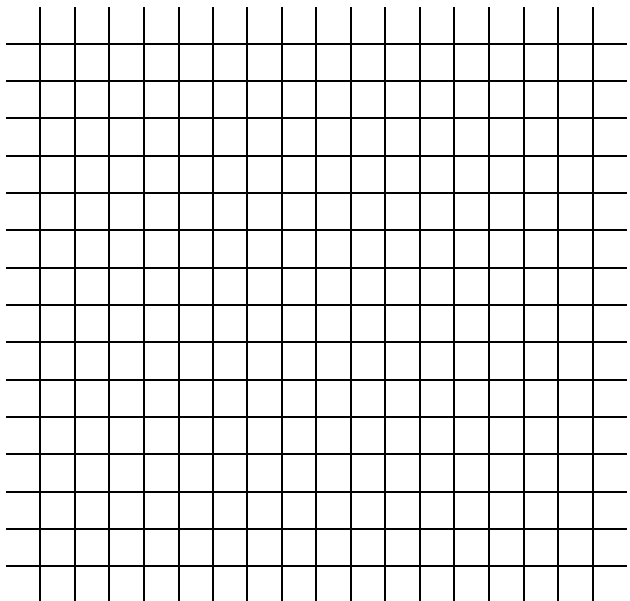| $\alpha + \beta = 90°$	
Let $\alpha = 32.5°$	____ $+ \beta = 90°$
Solve for β	

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.

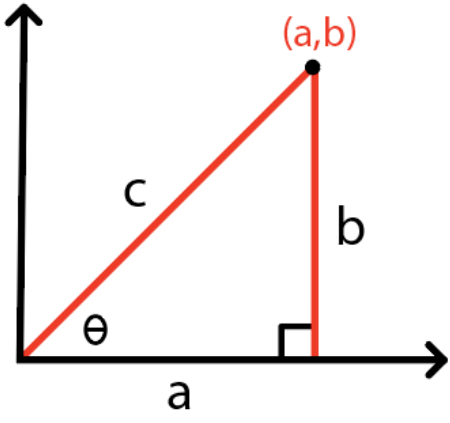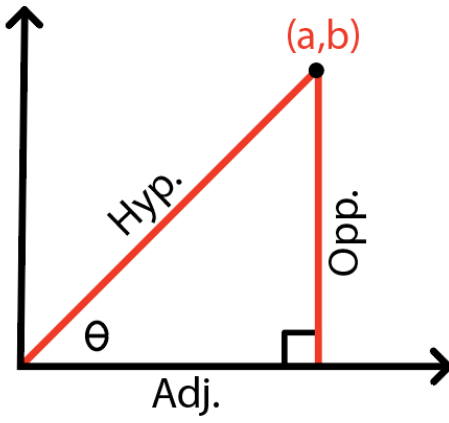Find the angle measures to two decimal places of the acute angle between the given line, $y = \frac{1}{2}x + 2$, and the x-axis.

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

Definition: A triangle with an interior angle of $\theta =$ __90_____ is a right triangle. Often it is represented with a □

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

Trigonometric Ratios		**Right Triangle Ratios**	
$\sin\theta$ =b/c	$\csc\theta$ $= c/b$	$\sin\theta =$ Opp./Hyp	$\csc\theta =$ Hyp./Opp.
$\cos\theta$ =a/c	$\sec\theta$ $= c/a$	$\cos\theta =$ Adj./Hyp	$\sec\theta =$ Hyp./Adj.
$\tan\theta$ =b/a	$\cot\theta$ $= a/b$	$\tan\theta =$ Opp./Adj.	$\cot\theta =$ Adj./Opp

$\alpha + \beta = 90°$	
Let $\alpha = 32.5°$	____ $+ \beta = 90°$

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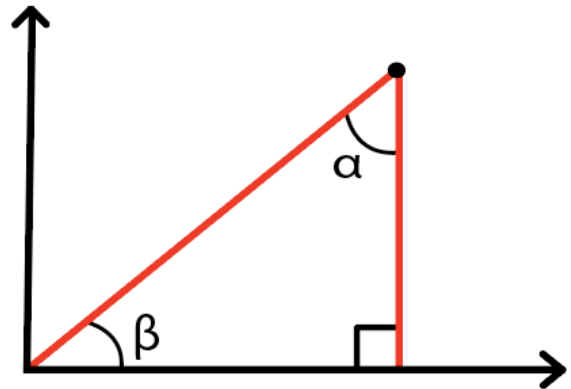
Find θ given and show your work if needed:

$\sin \theta = 0.122$ **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**.
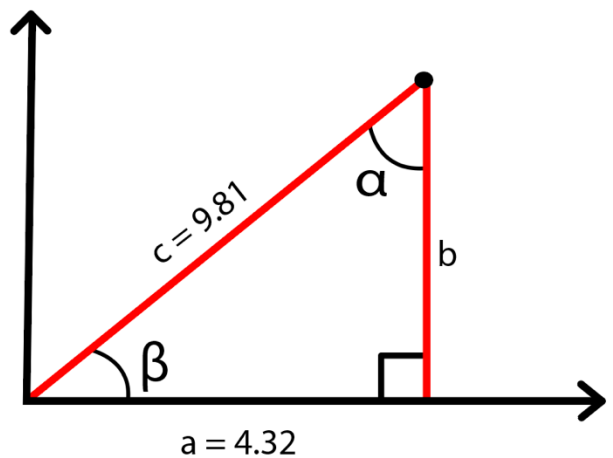
$$\cos \beta = \frac{4.32}{9.81}$$

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

$$\beta = 63.872702°$$

$$\alpha = 90° - 63.872702° = 26.127°$$

$$\tan 63.873° = \frac{b}{4.32}$$

$$b = 4.32\,(\tan 63.873°) = 8.81$$

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.

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

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

$$\beta = 26.57$$

b = 5

a = 10