

- (1) Find the exact values of the trigonometric functions for the acute angle  $\theta$ .

$$\csc(\theta) = 4$$

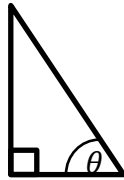
$$\sin(\theta) = \underline{\hspace{2cm}}$$

$$\cos(\theta) = \underline{\hspace{2cm}}$$

$$\tan(\theta) = \underline{\hspace{2cm}}$$

$$\sec(\theta) = \underline{\hspace{2cm}}$$

$$\cot(\theta) = \underline{\hspace{2cm}}$$



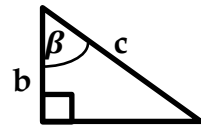
- (2) Use the Pythagorean Identities to write the expression as an integer.

$$3\tan^2(\alpha) - 3\sec^2(\alpha)$$

- (3) Simplify.

$$\frac{\csc^2(\gamma) + \csc(\gamma) - 6}{\left(\frac{1}{\sin^2(\gamma)}\right) - 4}$$

- (4) Find the exact values of the trigonometric functions for the acute angle  $\beta$ . You can only use the symbols of  $b$ ,  $c$ , and  $\beta$ .



$$\sin(\beta) = \underline{\hspace{2cm}}$$

$$\csc(\beta) = \underline{\hspace{2cm}}$$

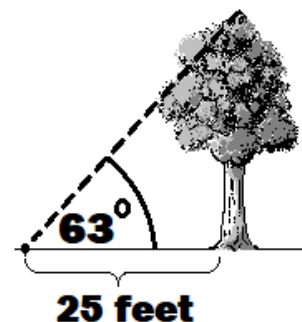
$$\cos(\beta) = \underline{\hspace{2cm}}$$

$$\sec(\beta) = \underline{\hspace{2cm}}$$

$$\tan(\beta) = \underline{\hspace{2cm}}$$

$$\cot(\beta) = \underline{\hspace{2cm}}$$

- (5) **Distance to Road.** A tree has grown off to the side of the road. A surveyor has to determine the height of the tree. If 25 feet away from the base of the tree, the angle made with the top of the tree and the ground is  $63^\circ$ , then **what is the height** of the tree.? [Remember to set up and equation before solving for the answer.]



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**Extra Credit:**

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- 1) Use the fundamental **identities** to write the first expression in terms of the second, for any acute  $\beta$ .  
 $\cot(\beta)$  ,  $\cos(\beta)$
- (2) **What** angle is neither positive nor negative?
- (3) If I am standing next to a car that is moving by me at a high speed, am I first pushed away from the car by the air then pulled in towards the car or vice versa, or neither?