

# Math 1613 - Trigonometry

Exam #2 - 2010.09.16

Name: \_\_\_\_\_

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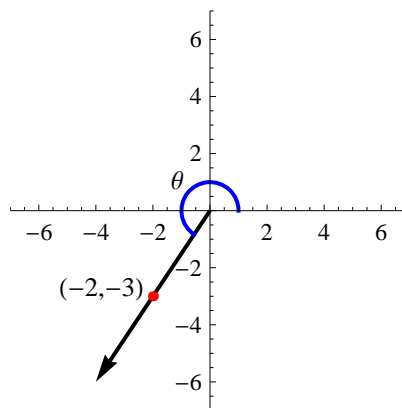
1. Evaluate the following expression.

$$\sec^2(300^\circ) - 2 \cos^2(150^\circ) + \tan(45^\circ)$$

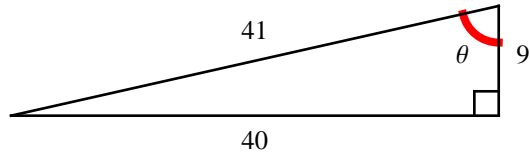
2. Find one solution to the equation.

$$\tan(5x + 11^\circ) = \cot(6x + 2^\circ)$$

3. Find the sine, cosine and tangent function values for the following angle depicted below.



4. Give the six trigonometric function values of angle  $\theta$  as depicted in the following figure.

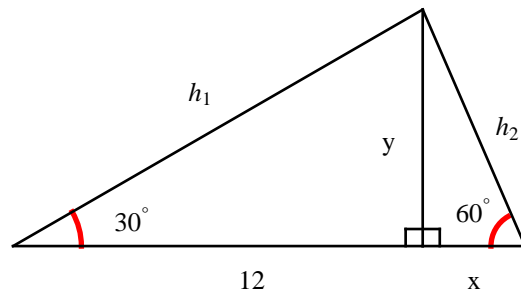


5. Find exact values of the six trigonometric functions for the angle  $\theta = -1290^\circ$ .

6. Which of the following cannot be exactly determined using reference angles:

- a)  $\sin(250^\circ)$       b)  $\tan(135^\circ)$       c)  $\cos(126^\circ)$       d)  $\csc(390^\circ)$

7. Find values for the lengths of the unknown sides in the following figure.



8. Two ships leave a port at the same time, with the first sailing on a bearing of  $32^\circ$  at 16 knots, and the second on a bearing of  $122^\circ$  at 24 knots. How far apart are they after 2.5 hours? (Knots are nautical miles/hour)

9. One side of a rectangle measures 15cm. The angle between the diagonal and that side is  $30^\circ$ . Find the length of the unknown side and the diagonal.

10. Find a formula for  $h$  in terms of  $k$ ,  $A$ , and  $B$ . You may assume that  $A < B$ . (Here  $h$  is the height of the upper triangle, not the entire triangle.)

