Task

Student Text Page
248

Suggested Timing
60–75 min

Tools
- graphing calculator

Related Resources
- BLM 4–13 Task: Make Your Own Identity Rubric

Ongoing Assessment
- Use **BLM 4–13 Task: Make Your Own Identity Rubric** to assess student achievement.

Make Your Own Identity

Teaching Suggestions

Have the students read the question in pairs, but then go back to their desks and work on their own. This will help ESL and ELL students as well as make certain students have another pair of eyes interpreting the questions so there is no mistaking what is being asked for. The Task could be assigned as an in-class assignment or as an independent assignment to be completed outside of class.

Assess student responses for the level of mathematical understanding they represent. As you assess each response, consider the following questions:

- Has the student used understanding of trigonometric identities?
- Did the student comprehend the given information?
- Has the student provided written step by step solution to the proof?
- Has the student provided good hints for the solution to the proof?

Level 3 Sample Response

I will start with $\sin x = \sin x$ and then make it progressively more complicated both on the L.S. and the R.S.

$$\sin x = \sin x$$
$$\tan x \cos x = \frac{1}{\csc x}$$
$$\tan x\left(\frac{1}{\sec x}\right) = \frac{1}{\cot x \sec x}$$

When I graphed the L.S. of the equation it matched the graph of the R.S. of the equation.

My question to trade is: Prove $\tan x\left(\frac{1}{\sec x}\right) = \frac{1}{\cot x \sec x}$.

My check is as follows:

$$\text{L.S.} = \tan x\left(\frac{1}{\sec x}\right)$$
$$= \frac{\sin x}{\cos x}\left(\frac{1}{\frac{1}{\cos x}}\right)$$
$$= \frac{\sin x}{\cos x}(\cos x)$$
$$= \sin x$$

$$\text{R.S.} = \frac{1}{\cot x(\sec x)}$$
$$= \frac{1}{\frac{\cos x}{\sin x}\left(\frac{1}{\cos x}\right)}$$
$$= \frac{1}{\frac{1}{\sin x}}$$
$$= \sin x$$

Hints for my partner proving my identity:

1) consider the quotient identity
2) consider reciprocal identities