

Name \_\_\_\_\_

**5-7 Lesson Master**

**Questions on SPUR Objectives**  
See Student Edition pages 339–343 for objectives.

**PROPERTIES** Objective J

1. Consider the equation  $\frac{1}{\cos x \tan x \sin x} = \csc^2 x$ .
- a. Prove this equation is an identity by rewriting the left side until it equals the right side.
- \_\_\_\_\_
- b. Prove this equation is an identity by rewriting each side independently until you obtain equivalent expressions.
- |       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

In 2 and 3, prove the identity and state its domain.

2.  $\frac{\sec x - \tan x}{\cos x} = \frac{1 - \sin x}{\cos^2 x}$
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- domain: \_\_\_\_\_
3.  $\sec x = \frac{\csc^2 x - \cot^2 x}{\cos x}$
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- domain: \_\_\_\_\_

**REPRESENTATIONS** Objective N

In 4 and 5, an equation is given. a. Use a graphing utility to decide whether the equation seems to be an identity. Explain how the graph indicates whether it seems to be an identity or not. b. If the equation seems to be an identity, prove it. If it does not, find a value of  $x$  for which the equation is not true.

4.  $\csc(\pi + x) = 1 - \sec x$
- a. \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- b. \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
5.  $\tan x + \sin x = \tan x (1 + \cos x)$
- a. \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- b. \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_