

Name _____

5-9 Lesson Master

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

SKILLS Objective D

1. Suppose $0 < x < \pi$ and $\cos x = \frac{1}{5}$. Find $\cos 2x$. _____
2. Suppose $-90^\circ < y < 90^\circ$ and $\sin y = 0.43$. Estimate $\sin 2y$. _____

In 3–6, use an appropriate identity for $\cos 2x$ to write the trigonometric value in terms of rational numbers and radicals.

3. $\sin \frac{\pi}{8}$ _____
4. $\sin 165^\circ$ _____
5. $\cos 15^\circ$ _____
6. $\cos \frac{7\pi}{12}$ _____

7. a. Use a double-angle formula to write $\cos \frac{\pi}{12}$ in terms of rational numbers and radicals.

- b. Use your answer to Part a and the Identity for $\sin 2x$ to find an expression for $\sin \frac{\pi}{12}$ in terms of rational numbers and radicals.

- c. Use your answers to Parts a and b and the Sine of a Difference Theorem to find an expression for $\sin \frac{17\pi}{12}$ in terms of rational numbers and radicals.

PROPERTIES Objective J

In 8 and 9, fill in the blank so that the equation is an identity.

8. _____ = $2 \sin x \cos x$
9. $\cos 2x = 1 -$ _____

In 10 and 11, prove the identity.

10. $1 + \sin 2x = (\sin x + \cos x)^2$
11. $2 \sin x \csc 2x = \sec x$

_____	_____
_____	_____
_____	_____

12. Prove that $\cos 2x + 1 = 2 - 2 \sin^2 x$ is an identity and justify each step.
