

Name _____

1-1 Lesson Master

Questions on SPUR Objectives
See Student Edition pages 71–75 for objectives.

SKILLS Objectives A, B, and D

In 1 and 2, identify the statement as a universal statement, an existential statement, or neither.

1. All lizards are reptiles. _____ 2. The unit circle has radius 1. _____

In 3 and 4, rewrite the sentence as a statement using *for all*, *there exists*, or both.

3. *Every triangle has at least one angle with measure 60 degrees or more.*

4. *All dogs have noses.*

In 5 and 7, determine the truth value of the statement. If false, provide a counterexample.

5. $\forall x \text{ in } Z, x^2 > 0$. _____
6. $\exists x \text{ in } Z \text{ such that } x^2 \leq 0$. _____

PROPERTIES Objectives E, F, and H

In 7 and 8, determine whether the given sentence is a statement.

7. $x^3 - x + 1 = 0$ _____ 8. *The graph of $y = 2x$ crosses the x -axis.* _____
9. The following statement is true: \forall *positive integers* n ,
the sum of the integers from 1 to n is $\frac{n(n+1)}{2}$. Use the
Law of Substitution to find the sum of the integers
from 1 to 55. _____

10. *True or False.* Justify your answer. \forall *real numbers* x and n , x^n is a real number.

USES Objective I

11. Kevin has an older sister and a younger brother. Is the following statement true or false?
 \exists a sibling of Kevin that has two younger brothers. Justify your answer.

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