

Name _____

3-8 Lesson Master

Questions on SPUR Objectives
See Student Edition pages 216–219 for objectives.

SKILLS Objective E

1. Solve $-2z - 1 \geq 15$ and justify each step.

Step

Justification

Given

In 2–5, solve the inequality.

2. $2^x \leq 9$ _____

3. $\log_4 y < 3$ _____

4. $\ln w > 0.5$ _____

5. $\left(\frac{1}{2}\right)^p \leq 7$ _____

PROPERTIES Objectives F and G

6. Give a counterexample to show that this statement is false. Then change it to make it true. If f is a 1-1 function, applying f to both sides of an inequality always preserves the sense of the inequality.

7. *True or False.*

- a. If a function is increasing, then its inverse is a function. _____
- b. If a function is increasing, then its inverse is increasing. _____
- c. If a function is decreasing, then its inverse is increasing. _____

USES Objective I

8. In an effort to clean up the environment, biotechnologists sometimes inoculate plant roots with engineered bacteria that enable the plants to remove toxic and noxious organic compounds from the air. Suppose that a biotechnologist starts with 50 engineered bacteria, and needs at least 10,000 such bacteria to inoculate her plants. If the bacteria population P after t hours can be modeled by $P = 50 \cdot 2.2^t$, write an inequality to represent the situation and solve it to find the range of acceptable incubation times she can wait to harvest the bacteria and inoculate the plants.

