

Name \_\_\_\_\_

5-1

Lesson Master

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

PROPERTIES

Objectives E and F

1. Prove that  $\sqrt{23}$  is irrational.
2. Use proof by contradiction to show that the reciprocal of any irrational number is irrational.
3. *True or False.* The difference of any two irrational numbers is irrational. If true, prove it. If false, provide a counterexample.

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In 4–9, identify the number as rational or irrational. If it is rational, write it as a ratio of integers  $a$  and  $b$ . If it is irrational, explain how you know.

4.  $-3$  \_\_\_\_\_

5.  $\sqrt{11}$  \_\_\_\_\_

6.  $\sqrt{13} + 1$  \_\_\_\_\_

7.  $\sqrt{2.56}$  \_\_\_\_\_

8.  $0.\overline{12}$  \_\_\_\_\_

9.  $0.12123123412345\dots$  (the pattern continues) \_\_\_\_\_

10. For what integer values of  $x$  is  $\sqrt{x - 5}$  rational? Explain your answer.

11. Find two values of  $y$  such that  $\sqrt{2} - y$  is rational. \_\_\_\_\_