Name

8-4B Lesson Master

Questions on SPUR Objectives
See Student Edition pages 574–577 for objectives.

SKILLS Objective C

In 1–12, evaluate without using a calculator.

1. $\sqrt[3]{0.216}$ _____

2. $\sqrt[6]{64}$ _____

3. $\sqrt[4]{6561}$ _____

4. $\sqrt[3]{343}$ _____

5. $\sqrt[5]{0.03125}$ _____

6. $\sqrt[5]{\frac{243}{32}}$ _____

7. $\sqrt[3]{512}$ _____

8. $\sqrt{169}$ _____

9. $\sqrt[4]{10,000}$ _____

10. $\sqrt[3]{0.008}$ _____

11. $\sqrt[6]{\frac{64}{729}}$ _____

12. $\sqrt[4]{50,625}$ _____

In 13–18, estimate to the nearest hundredth.

13. $\sqrt[4]{16 + 81}$ _____

14. $\sqrt[5]{28}$ _____

15. $\sqrt[9]{100}$ _____

16. $\sqrt[8]{8}$ _____

17. $\sqrt[4]{716,448}$ _____

18. $\sqrt[3]{0.00029}$ _____

PROPERTIES Objective G

19. **a.** On a CAS, find all complex fourth roots of 6561. _____

   b. Which of your answers from Part a is equal to $\sqrt[4]{6561}$? _____

20. Give a counterexample to the statement: For all h, $\sqrt[4]{h^4} = h$.

   _____

21. Consider the statement $\sqrt[5]{m^5} = m$. For which values of m is the
   statement true?   _____

22. For the radical expression $\sqrt[m]{n}$, what are the possible values

   a. of m? _____

   b. of n? _____

23. **Multiple Choice** When $x \geq 0$, $\sqrt[9]{x^4}$ equals which of the following?   _____

   A $x^{\frac{4}{9}}$ **B** $x^{\frac{9}{4}}$ **C** $x^{-\frac{4}{9}}$ **D** $\frac{1}{9}x^4$

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24. Suppose $r \geq 0$ and a and b are integers such that $a \geq 1$ and $b \geq 2$. Write
    two other expressions that are equivalent to $\sqrt[b]{r^a}$.

    _____

USES Objective I

25. A cone has volume $V = \frac{1}{3}\pi r^2 h$. Express the length of its radius

    a. in radical notation.   b. with a rational exponent.

    _____   _____

26. Find the radius, to the nearest tenth, of a cone with volume
    1063.8 cm^3 and height 9.1 cm.   _____

27. A sphere has volume $V = \frac{4}{3}\pi r^3$. Write an expression for r using
    radical notation.   _____

28. Find the radius, to the nearest tenth, of a sphere with volume
    250 in^3.   _____

29. The frequency F of a note that is n notes above a note with
    frequency f can be found by using the following formula:

    $F = f \cdot 2^{\frac{n}{12}}$.

    a. Write this formula using radical notation.   _____

    b. Suppose you want to know the frequency F of a note 5 notes
       above the note with frequency f. Write a formula for F
       using radical notation.   _____

30. Refer to the spinner at the right. Suppose the
    probability of spinning a B six times in a row
    is p. Use radical notation to give the probability
    of spinning a B on a single spin.

    _____