Name

8-5B Lesson Master

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

SKILLS Objective D

1. Find e and f.

   a. $\sqrt{600} = \sqrt{e} \cdot \sqrt{6} = f\sqrt{6}$

   $e =$ _____ $f =$ _____

   b. $\sqrt[3]{1600} = \sqrt[3]{e} \cdot \sqrt[3]{25} = f\sqrt[3]{25}$

   $e =$ _____ $f =$ _____

Multiple Choice In 2–4, Identify the expression that is *not* equivalent to the given expression.

2. $\sqrt[3]{96}$ _____

   A $\sqrt[3]{48} \cdot \sqrt[3]{2}$ B $\sqrt[3]{12} \cdot \sqrt[3]{8}$ C $8\sqrt[3]{12}$

   D $2\sqrt[3]{12}$ E $\sqrt[3]{16} \cdot \sqrt[3]{6}$ F $\sqrt[3]{4} \cdot \sqrt[3]{24}$

3. $\sqrt[4]{5} \cdot \sqrt[4]{250}$ _____

   A $\sqrt[4]{5} \cdot \sqrt[4]{125} \cdot \sqrt[4]{2}$ B $2\sqrt[4]{5}$ C $\sqrt[4]{5^4} \cdot \sqrt[4]{2}$

   D $\sqrt[4]{1250}$ E $\sqrt[4]{50} \cdot \sqrt[4]{25}$ F $5\sqrt[4]{2}$

4. $\sqrt[6]{128y^{14}}$ _____

   A $\sqrt[6]{128} \cdot \sqrt[6]{y^{12}} \cdot \sqrt[6]{y^2}$ B $\sqrt[6]{2^6 \cdot 2 \cdot y^6 \cdot y^6 \cdot y^2}$ C $\sqrt[6]{2^7} \cdot \sqrt[6]{y^{14}}$

   D $64y^{12} \cdot \sqrt[6]{2y^2}$ E $\sqrt[6]{128} \cdot \sqrt[6]{y^{14}}$ F $2y^2\sqrt[6]{2y^2}$

In 5–20, simplify or rewrite with smaller powers of the variables inside the radical. Assume all variables are nonnegative.

5. $\sqrt[3]{250}$ _____

6. $\sqrt[4]{48}$ _____

7. $\sqrt[4]{50{,}000x^7}$ _____

8. $\sqrt[3]{27x^6y^4}$ _____

9. $\sqrt[6]{x^{12}y^6}$ _____

10. $\sqrt[4]{81m^5}$ _____

11. $\sqrt[4]{5} \cdot \sqrt[4]{125}$ _____

12. $\sqrt[3]{9} \cdot \sqrt[3]{48}$ _____

13. $\sqrt[3]{2u^7} \cdot \sqrt[3]{4u^2}$ _____

14. $\sqrt[5]{3^3x} \cdot \sqrt[5]{3^4x^8}$ _____

15. $\sqrt[3]{54x^8}$ _____

16. $\sqrt[5]{32y^9}$ _____

17. $\sqrt[7]{z^{21}w^{14}}$ _____

18. $\sqrt[9]{2^{12}x^{14}y^{10}}$ _____

19. $\sqrt[3]{4x^2} \cdot \sqrt[3]{2x}$ _____

20. $\sqrt[4]{3^6w^7} \cdot \sqrt[4]{3^2w^2}$ _____

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PROPERTIES Objective G

True or False In 21–24, $x \geq 0$. Justify your answer.

21. $\sqrt[6]{x} = \sqrt[12]{x^2}$

22. $\sqrt[4]{x} \cdot \sqrt[3]{x} = \sqrt[12]{x^2}$

23. $\sqrt[7]{x} \cdot \sqrt[14]{x^2} = \sqrt[14]{x^4}$

24. $\sqrt[5]{x} \cdot \sqrt[3]{x} = \sqrt[15]{x^8}$

In 25 and 26, write the expression using a single radical sign.

25. $\sqrt[4]{r} \cdot \sqrt[3]{r}$ _____

26. $\sqrt[6]{a} \cdot \sqrt[5]{b}$ _____

REVIEW Lesson 8-4, Objective I

27. Find the geometric mean of the following set of numbers. Round to the nearest hundredth.

    18, 27, 84, 33.6, 4 _____

28. The table at the right gives approximations of the period of revolution for the eight planets in our solar system. Find the geometric mean of these periods.

    _____

Planet	Period of Revolution (yr)
Mercury	0.24
Venus	0.62
Earth	1
Mars	1.88
Jupiter	11.86
Saturn	29.46
Uranus	84.01
Neptune	164.79

Source: http://www.exploratorium.edu