

Name _____

Date _____

LESSON
6.2**Practice***For use with pages 420-427***Simplify the expression using the properties of radicals and rational exponents.**

1. $7^{1/3} \cdot 7^{4/3}$

2. $\frac{4^{2/3}}{4^{1/3}}$

3. $(6^{2/3})^{3/4}$

4. $5^{1/4} \cdot 3^{1/4}$

5. $\sqrt{2} \cdot \sqrt[3]{8}$

6. $\frac{\sqrt[3]{192}}{\sqrt[3]{6}}$

7. $\frac{11}{\sqrt[3]{11}}$

8. $\sqrt[3]{7} \cdot \sqrt[3]{49}$

9. $(3^{3/2})^2$

10. $\left(\frac{54}{64}\right)^{1/3}$

11. $\frac{\sqrt[3]{32}}{\sqrt[3]{2}}$

12. $\frac{\sqrt[3]{5}}{\sqrt[3]{27}}$

Simplify the expression. Assume all variables are positive.

13. $x^{5/3} \cdot x^{4/3}$

14. $\sqrt{x^{2/5}}$

15. $(x^{1/2})^{2/7}$

16. $\left(\frac{x^2}{27}\right)^{1/3}$

17. $\sqrt[3]{16x^4}$

18. $(x^{-3})^{2/5}$

19. $\frac{x^{7/5}}{x^{4/5}}$

20. $\frac{\sqrt[3]{64x^3y}}{4x^{-3}y}$

21. $x^5 \cdot x\sqrt[3]{x}$

Write the expression in simplest form. Assume all variables are positive.

31. $\sqrt[4]{3x^7y^9z^3}$

32. $\sqrt{x^3y^4z} \cdot \sqrt{xyz^4}$

33. $\sqrt[3]{\frac{81x^2y^3}{8xy^4z}}$

Perform the indicated operation
Assume all variables are positive

25. $6\sqrt[3]{5} + 2\sqrt[3]{5}$

27. $2\sqrt{27} - 3\sqrt{48}$

29. $3(x^{1/2}y^3)^2 - (x^3y^{18})^{1/3}$

26. $5\sqrt{5} - \sqrt{45}$

28. $2\sqrt{x} + 7\sqrt{x}$

Name _____

Date _____

LESSON
6.3**Practice***For use with pages 428–435*

Let $f(x) = 7x^{1/2} - 2$, $g(x) = -x^{1/2} + 4$, and $h(x) = -4x^{1/2} + 1$.
Perform the indicated operation.

1. $f(x) + g(x)$

2. $f(x) + h(x)$

3. $h(x) + g(x)$

4. $f(x) - g(x)$

5. $h(x) - f(x)$

6. $g(x) - h(x)$

Let $f(x) = 4x^2$, $g(x) = -3x^{4/3}$, and $h(x) = x^{1/2}$. Perform the
indicated operation.

7. $f(x) \cdot g(x)$

8. $f(x) \cdot h(x)$

9. $h(x) \cdot g(x)$

10. $\frac{f(x)}{g(x)}$

11. $\frac{h(x)}{f(x)}$

12. $\frac{h(x)}{g(x)}$

Let $f(x) = 2x + 3$, $g(x) = \frac{3}{x+1}$, and $h(x) = \frac{x+5}{2}$. Perform the
indicated operation.

13. $f(g(x))$

14. $g(h(x))$

15. $f(h(x))$

16. $g(f(x))$

17. $h(f(x))$

18. $g(g(x))$