

7-4 Practice

Radical Expressions

Simplify each expression.

1. $\sqrt{24}$

2. $\sqrt{60}$

3. $\sqrt{7} \cdot \sqrt{14}$

4. $\sqrt{27tu^3}$

5. $\sqrt{56m^2n^4p^5}$

6. $\frac{\sqrt{8}}{\sqrt{6}}$

7. $\sqrt{\frac{2}{10}}$

8. $\sqrt{\frac{1}{7}} \cdot \sqrt{\frac{7}{11}}$

9. $\frac{\sqrt{3k}}{\sqrt{8}}$

10. $\sqrt{\frac{9ab}{4ab^4}}$

11. $\frac{5}{\sqrt{7} + \sqrt{3}}$

12. $\frac{3\sqrt{7}}{-1 - \sqrt{27}}$

13. $8\sqrt{30} - 4\sqrt{30}$

14. $2\sqrt{5} - 7\sqrt{5} - 5\sqrt{5}$

15. $\sqrt{27} + \sqrt{18} + \sqrt{300}$

16. $5\sqrt{8} + 3\sqrt{20} - \sqrt{32}$

17. $\sqrt{6}(\sqrt{10} + \sqrt{15})$

18. $\sqrt{5}(5\sqrt{2} - 4\sqrt{8})$

19. $2\sqrt{7}(3\sqrt{12} + 5\sqrt{8})$

20. $(5 - \sqrt{15})^2$

21. $(\sqrt{10} + \sqrt{6})(\sqrt{30} - \sqrt{18})$

22. $(\sqrt{8} + \sqrt{12})(\sqrt{48} + \sqrt{18})$

23. $(\sqrt{2} + 2\sqrt{8})(3\sqrt{6} - \sqrt{5})$

24. $(4\sqrt{3} - 2\sqrt{5})(3\sqrt{10} + 5\sqrt{6})$

25. **SKY DIVING** When a skydiver jumps from an airplane, the time t it takes to free fall a given distance can be estimated by the formula $t = \sqrt{\frac{2s}{9.8}}$, where t is in seconds and s is in meters. If Julie jumps from an airplane, how long will it take her to free fall 750 meters?

26. **SOUND** The speed of sound V in meters per second near Earth's surface is given by $V = 20\sqrt{t + 273}$, where t is the surface temperature in degrees Celsius.

a. What is the speed of sound near Earth's surface at 15°C and at 2°C in simplest form?

b. How much faster is the speed of sound at 15°C than at 2°C ?