

Chapter 8
Form A

For problems 1 – 3, find the indicated root, or state that the expression is not a real number.

1. $\sqrt{64}$ 1. _____

2. $\sqrt[3]{-125}$ 2. _____

3. $\sqrt{-100}$ 3. _____

For problems 4 – 6, simplify by first writing the expression in radical form.

4. $27^{\frac{1}{3}}$ 4. _____

5. $32^{\frac{3}{5}}$ 5. _____

6. $(-64)^{-\frac{2}{3}}$ 6. _____

For problems 7 – 9, simplify each expression.

7. $2\sqrt{75}$ 7. _____

8. $\sqrt{80x^9}$ 8. _____

9. $\sqrt[3]{54x^{14}}$ 9. _____

For problems 10 – 19, perform the indicated operation and, if possible, simplify.

10. $\sqrt{4} \cdot \sqrt{8}$ 10. _____

11. $\sqrt[3]{5} \cdot \sqrt[3]{100}$ 11. _____

12. $\sqrt{8x^5} \cdot \sqrt{3x^2}$ 12. _____

13. $\sqrt{\frac{3}{16}} \cdot \sqrt{\frac{3}{4}}$ 13. _____

14. $3\sqrt{27} - 5\sqrt{12}$ 14. _____

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15. $9\sqrt{12} + 6\sqrt{20}$ 15. _____

16. $\sqrt{3}(4\sqrt{2} - 6\sqrt{3})$ 16. _____

17. $(\sqrt{5} + 4)(3\sqrt{5} - 2)$ 17. _____

18. $(3 + \sqrt{2})(3 - \sqrt{2})$ 18. _____

19. $(4 - \sqrt{5})^2$ 19. _____

For problems 20 – 21, rationalize each denominator and, if possible simplify.

20. $\sqrt{\frac{5}{6}}$ 20. _____

21. $\frac{5}{\sqrt{3} - 1}$ 21. _____

For problems 22 – 24, solve each radical equation. If the equation has no solution, so state.

22. $\sqrt{x + 2} = 5$ 22. _____

23. $\sqrt{4x - 4} + 1 = 5$ 23. _____

24. $\sqrt{3 - 2x} = x$ 24. _____

25. For a pendulum of length, l , in feet, the time t , in seconds, for the pendulum to swing through one complete cycle is described by $t = \frac{22}{7} \sqrt{\frac{l}{32}}$. How long must the pendulum be for one complete cycle to take 3 seconds (approximate answers to 3 decimal places)? 25. _____