

Name _____

Date _____

Chapter 8
Form C

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

1. $\sqrt{256}$ 1. _____

2. $\sqrt{-25}$ 2. _____

3. $\sqrt[3]{-27}$ 3. _____

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

4. $100^{\frac{1}{2}}$ 4. _____

5. $81^{\frac{5}{4}}$ 5. _____

6. $(-8)^{-\frac{5}{3}}$ 6. _____

For problems 7 – 9, simplify each expression.

7. $15\sqrt{108}$ 7. _____

8. $\sqrt[4]{32x^{13}}$ 8. _____

9. $\sqrt[3]{108x^{16}}$ 9. _____

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

10. $\sqrt{12x} \cdot \sqrt{4x^2}$ 10. _____

11. $\sqrt[3]{49} \cdot \sqrt[3]{14}$ 11. _____

12. $\sqrt{\frac{5}{8}} \cdot \sqrt{\frac{15}{8}}$ 12. _____

13. $\frac{\sqrt{540x^5}}{\sqrt{5x^2}}$ 13. _____

14. $\sqrt{3x^4} \cdot \sqrt{54x^5}$ 14. _____

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15. $12\sqrt{40} + 3\sqrt{160} - 10\sqrt{90}$ 15. _____

16. $\sqrt{6}(4\sqrt{2} + 5\sqrt{6})$ 16. _____

17. $(7 + 8\sqrt{3})(3 - 5\sqrt{3})$ 17. _____

18. $(9 + 2\sqrt{5})(9 - 2\sqrt{5})$ 18. _____

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

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

20. $\sqrt{\frac{18}{y}}$ 20. _____

21. $\frac{8}{\sqrt{3} + 1}$ 21. _____

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

22. $\sqrt{2x - 3} - 7 = 2$ 22. _____

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

24. $\sqrt{x - 1} = x - 1$ 24. _____

25. The formula $v = \left(\frac{P}{0.015}\right)^{\frac{1}{3}}$ models the wind speed, v , 25. _____

in miles per hour, needed to produce P watts of power from a windmill. How fast must the wind be blowing to produce 75 watts of power? Round your answer to the nearest integer.