

NAME _____

DATE _____

Module 17 Simplifying Radical Expressions
Lesson 3 Multiplying Radicals

independent practice

Simplify the following radical expressions.

- | | |
|--|--|
| 1. $\sqrt{3} \cdot \sqrt{5}$ _____ | 2. $\sqrt{6} \cdot \sqrt{3}$ _____ |
| 3. $\sqrt{x} \cdot \sqrt{x}$ _____ | 4. $\sqrt{10} \cdot \sqrt{8}$ _____ |
| 5. $\sqrt{12} \cdot \sqrt{3}$ _____ | 6. $\sqrt[3]{32} \cdot \sqrt[3]{2}$ _____ |
| 7. $\sqrt[3]{24} \cdot \sqrt[3]{3}$ _____ | 8. $\sqrt[3]{2} \cdot \sqrt[3]{-4}$ _____ |
| 9. $\sqrt{5}(2 + \sqrt{5})$ _____ | 10. $\sqrt{3}(\sqrt{5} + \sqrt{27})$ _____ |
| 11. $\sqrt{m}(\sqrt{7} + \sqrt{m})$ _____ | 12. $\sqrt{2}(\sqrt{18} + \sqrt{6})$ _____ |
| 13. $\sqrt[3]{2}(\sqrt[3]{16} - \sqrt[3]{7})$ _____ | 14. $\sqrt[3]{3}(\sqrt[3]{9} - \sqrt[3]{2})$ _____ |
| 15. $(\sqrt{11} + \sqrt{5})^2$ _____ | 16. $(\sqrt{12} + \sqrt{y}) \cdot (\sqrt{12} - \sqrt{y})$ _____ |
| 17. $(\sqrt{3} + \sqrt{4})^2$ _____ | 18. $(\sqrt{10} + \sqrt{7}) \cdot (\sqrt{7} - \sqrt{10})$ _____ |
| 19. $(\sqrt{7} + \sqrt{3}) \cdot (\sqrt{7} - \sqrt{3})$ _____ | 20. $(\sqrt{8} + \sqrt{5}) \cdot (\sqrt{6} - \sqrt{8})$ _____ |

Journal

- Luke states the expression $\sqrt{8} \cdot \sqrt{5}$ in simplest form is $\sqrt{40}$. Why is this incorrect?
- Is $(\sqrt{6} + \sqrt{x}) \cdot (\sqrt{6} + \sqrt{x})$ equal to $6 + \sqrt{6x} + x$? Explain how the answer is determined.
- Define and demonstrate the Product Property of Squares Roots.
- Is the expression $(\sqrt{3} + \sqrt{y}) \cdot (\sqrt{3} - \sqrt{y})$ written in simplest form $3 + 2\sqrt{3y} + y$? Why or why not?
- Describe each step of the process for writing $(\sqrt{4} + \sqrt{3})^2$ in simplest form.

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Cumulative Review

1. Find the restricted value(s) in the domain of the expression $\frac{12}{a^2 - 3a - 4}$.

2. Solve for x : $x - 16 = \frac{3x}{5}$.

3. Determine whether y varies directly as x . If so, find the constant of variation.

| x | y |
|-----|-----|
| 14 | 42 |
| 9 | 27 |
| 24 | -72 |
| -16 | -48 |

4. Solve for x : $\frac{x}{4} = \frac{2}{16}$

5. Working together, Paul and Diane can create an 80-page travel guide in 10 hours. It would take Diane 18 hours to create this by herself. How long would it take Paul to complete the travel guide by himself?

6. One car travels at a rate 12 mi/h faster than another car. In the same amount of time, the slower car travels 80 mi, and the faster car travels 96 mi. Find the rates of speed of each car.

Simplify.

7. $\sqrt{128}$ _____

8. $-\sqrt[3]{-216}$ _____

9. $\sqrt[3]{2} + \sqrt[3]{27} - \sqrt[3]{16}$ _____

10. $-\sqrt{45x^2} + \sqrt{80x}$ _____

