

10-3 Practice B

Form K

Operations with Radical Expressions

Simplify each sum or difference.

1. $11\sqrt{7} - 4\sqrt{7}$

2. $5\sqrt{5} + \sqrt{5}$

3. $9\sqrt{10} - 8\sqrt{10}$

4. $8\sqrt{2} - \sqrt{98}$

5. $\sqrt{245} + 2\sqrt{320}$

6. $2\sqrt{54} - 3\sqrt{96}$

Simplify each product.

7. $\sqrt{3}(\sqrt{5} + \sqrt{3})$

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

9. $2\sqrt{10}(\sqrt{5} - 4\sqrt{10})$

10. $(3\sqrt{3} - 2\sqrt{2})^2$

11. $(\sqrt{3} + \sqrt{6})(\sqrt{3} - \sqrt{6})$

12. $(2\sqrt{2} + \sqrt{5})(2\sqrt{2} - \sqrt{5})$

13. An area rug is shaped like a golden rectangle. Its length is 8 ft. What is the rug's width? Write your answer in simplified radical form and rounded to the nearest tenth of a foot.

14. A car fits onto a golden rectangle with a length of 12 ft. What is the car's width? Write your answer in simplified radical form and rounded to the nearest tenth of a foot.

Simplify each quotient.

15. $\frac{3}{\sqrt{5}-1}$

16. $\frac{7}{\sqrt{2}-\sqrt{3}}$

17. $\frac{-1}{9-\sqrt{3}}$

18. $\frac{-3}{\sqrt{2}+\sqrt{5}}$

Find the exact solution for each equation. Find the approximate solution to the nearest tenth.

19. $\frac{3\sqrt{3}}{\sqrt{1+1}} = \frac{x}{\sqrt{3}}$

20. $\frac{5}{1-\sqrt{2}} = \frac{1+\sqrt{2}}{x}$

21. $\frac{4-\sqrt{5}}{4+\sqrt{5}} = \frac{x}{2}$

22. $\frac{x}{3-\sqrt{2}} = \frac{2+\sqrt{2}}{5}$

Simplify each expression.

23. $\sqrt{108} + \sqrt{147}$

24. $2\sqrt{3}(6+2\sqrt{6})$

25. $(\sqrt{2} + \sqrt{3})^2$

26. $5\sqrt{96} - 8\sqrt{150}$

27. **Writing** Are $\sqrt{2}$ and $\sqrt{32}$ like radicals? Can their sum be simplified? Explain.