

LESSON
11-8

Practice A

Multiplying and Dividing Radical Expressions

Multiply. Write each product in simplest form.

1. $\sqrt{3} \cdot \sqrt{15}$
 $\sqrt{3 \cdot 15}$
 $\sqrt{45}$
 $\sqrt{__} \cdot 5$

2. $(2\sqrt{7})^2$
 $2\sqrt{7} \cdot 2\sqrt{7}$
 $__ \cdot __ \cdot \sqrt{7} \cdot \sqrt{7}$
 $__ \cdot \sqrt{7 \cdot 7}$
 $__ \cdot \sqrt{49}$

3. $3\sqrt{5t} \cdot \sqrt{40t}$
 $3 \cdot \sqrt{(5t)(40t)}$
 $3 \cdot \sqrt{200t^2}$
 $3 \cdot \sqrt{2 \cdot __} \cdot __$

4. $\sqrt{10} \cdot \sqrt{5}$

5. $(3\sqrt{10})^2$

6. $6\sqrt{7x} \cdot \sqrt{8x}$

7. $\sqrt{3}(\sqrt{6} - 2)$
 $\sqrt{3}(\sqrt{6}) - \sqrt{3}(2)$
 $\sqrt{18} - 2\sqrt{3}$

8. $\sqrt{6}(\sqrt{2} - \sqrt{3t})$
 $\sqrt{6}(\sqrt{2}) - \sqrt{6}(\sqrt{3t})$
 $\sqrt{12} - \sqrt{18t}$

9. $(2 - \sqrt{5})(7 + \sqrt{5})$
 $14 + 2\sqrt{5} - __ - __$

10. $\sqrt{5}(\sqrt{5} - 8)$

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

12. $(3 + \sqrt{2})(\sqrt{2} - 4)$

Simplify each quotient.

13. $\frac{\sqrt{3}}{\sqrt{5}}$
 $\frac{\sqrt{3}}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}}$

14. $\frac{\sqrt{11}}{\sqrt{3}}$
 $\frac{\sqrt{11}}{\sqrt{3}} \cdot \frac{\sqrt{__}}{\sqrt{__}}$

15. $\frac{\sqrt{5}}{\sqrt{32b}}$
 $\frac{\sqrt{5}}{__ \cdot \sqrt{2b}} \cdot \frac{\sqrt{__}}{\sqrt{__}}$

16. $\frac{\sqrt{5}}{\sqrt{6}}$

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

18. $(4 + \sqrt{3})(5 - \sqrt{3})$

Reading Strategies

1. They have the same radicand, 6.
2. Keep $\sqrt{6}$ and subtract $5 - 3$.
3. Write $2\sqrt{54}$ as $6\sqrt{6}$.
4. $8\sqrt{6}$
5. $-3\sqrt{5}$
6. $6\sqrt{3x} + 2\sqrt{10x}$
7. $20\sqrt{2}$
8. $21\sqrt{7y}$

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Practice A

1. 9; $3\sqrt{5}$
2. 2; 2; 4; 4; 28
3. $100; t^2; 30t\sqrt{2}$
4. $5\sqrt{2}$
5. 90
6. $12x\sqrt{14}$
7. $3\sqrt{2} - 2\sqrt{3}$
8. $2\sqrt{3} - 3\sqrt{2t}$
9. $7\sqrt{5}; 5; 9 - 5\sqrt{5}$
10. $5 - 8\sqrt{5}$
11. $7 + \sqrt{35}$
12. $-\sqrt{2} - 10$
13. $\frac{\sqrt{15}}{5}$
14. $\frac{\sqrt{3}}{\sqrt{3}}; \frac{\sqrt{33}}{3}$
15. $4; \frac{\sqrt{2b}}{\sqrt{2b}}; \frac{\sqrt{10b}}{8b}$
16. $\frac{\sqrt{30}}{6}$
17. $\sqrt{5}$
18. $17 + \sqrt{3}$

Practice B

1. $3\sqrt{10}$
2. 54
3. $8x\sqrt{35}$
4. $2\sqrt{15}$
5. 28
6. $-10b\sqrt{2}$
7. $6y\sqrt{15}$
8. $4\sqrt{6} - 4$
9. $\sqrt{10x} + 2x$
10. $\sqrt{14} - 5\sqrt{2}$
11. $5\sqrt{2m} - 2\sqrt{10}$
12. $5 - 2\sqrt{3}$
13. $2\sqrt{6} - 6\sqrt{3}$
14. $3\sqrt{10}$
15. $28 + \sqrt{2}$
16. $\sqrt{10} - \sqrt{30}$
17. $13 - 2\sqrt{2}$
18. 46

19. $\frac{\sqrt{3}}{3}$
20. $\frac{\sqrt{110}}{11}$
21. $\frac{\sqrt{26t}}{10t}$
22. $\frac{\sqrt{105}}{15}$
23. $\frac{\sqrt{34}}{17}$
24. $\frac{\sqrt{6z}}{3z}$
25. $\frac{\sqrt{a}}{a}$
26. $\frac{2\sqrt{10x}}{5}$
27. $-\frac{\sqrt{6}}{4}$

Practice C

1. $5\sqrt{3}$
2. $6\sqrt{14}$
3. 40
4. 25
5. $6x\sqrt{15}$
6. $24x\sqrt{2}$
7. $6 + 6\sqrt{3}$
8. $2\sqrt{15c} - 4\sqrt{3}$
9. $35 - 6\sqrt{5}$
10. $7\sqrt{2} + 2\sqrt{7}$
11. $3 - 3\sqrt{2}$
12. $39 - 13\sqrt{3}$
13. $-1 - 3\sqrt{5}$
14. $13 - 3\sqrt{15}$
15. $84 - 18\sqrt{3}$
16. $\frac{\sqrt{15}}{5}$
17. $\frac{2\sqrt{6}}{3}$
18. $\frac{\sqrt{2}}{2}$
19. 3
20. 1
21. $-\frac{\sqrt{6x}}{2}$
22. $\frac{\sqrt{22x}}{12x}$
23. $\frac{2\sqrt{3x}}{3x}$
24. $-\frac{5\sqrt{6}}{3}$
25. $12\sqrt{3} \text{ m}^2$
26. $\sqrt{10} \text{ yd}$

Review for Mastery

1. 6
2. $5\sqrt{2}$
3. $2\sqrt{22}$
4. $\frac{\sqrt{14}}{2}$
5. $\frac{2\sqrt{6}}{3}$
6. $\frac{2\sqrt{15}}{5}$
7. 4; $\sqrt{8}$; $4\sqrt{5} + 2\sqrt{10}$
8. $2 + 2\sqrt{7}$
9. 5; $\sqrt{3}$; 5; $\sqrt{3}$; $27 - \sqrt{3}$
10. $50 + 13\sqrt{10}$