

7-2 EXERCISES

A

Multiply.

1. $\sqrt{3} \sqrt{2}$
2. $\sqrt{5} \sqrt{7}$
3. $\sqrt[3]{2} \sqrt[3]{5}$
4. $\sqrt[3]{7} \sqrt[3]{2}$
5. $\sqrt[4]{8} \sqrt[4]{9}$
6. $\sqrt[4]{6} \sqrt[4]{3}$
7. $\sqrt{3a} \sqrt{10b}$
8. $\sqrt{2x} \sqrt{13y}$
9. $\sqrt[5]{9t^2} \sqrt[5]{2t}$
10. $\sqrt[5]{8y^3} \sqrt[5]{10y}$
11. $\sqrt{x-a} \sqrt{x+a}$
12. $\sqrt{y-b} \sqrt{y+b}$
13. $\sqrt[3]{0.3x} \sqrt[3]{0.2x}$
14. $\sqrt[3]{0.7y} \sqrt[3]{0.3y}$
15. $\sqrt[4]{x-1} \sqrt[4]{x^2+x+1}$
16. $\sqrt[5]{x-2} \sqrt[5]{(x-2)^2}$
17. $\sqrt{\frac{6}{x}} \sqrt{\frac{y}{5}}$

Simplify by factoring.

18. $\sqrt{24}$
19. $\sqrt{20}$
20. $\sqrt{180x^4}$
21. $\sqrt{175y^6}$
22. $\sqrt[3]{54x^8}$
23. $\sqrt[3]{40y^3}$
24. $\sqrt[3]{80x^8}$
25. $\sqrt[3]{108m^5}$
26. $\sqrt[4]{32}$
27. $\sqrt[4]{80}$
28. $\sqrt[4]{162c^4d^6}$
29. $\sqrt[4]{243x^8y^{10}}$
30. $\sqrt[3]{(x+y)^4}$
31. $\sqrt[5]{64x^6y^9}$
32. $\sqrt[6]{(a+b)^7}$
33. $\sqrt[9]{512x^3y^{12}}$

Multiply and simplify by factoring.

34. $\sqrt{3} \sqrt{6}$
35. $\sqrt{5} \sqrt{10}$
36. $\sqrt{2} \sqrt{32}$
37. $\sqrt{6} \sqrt{8}$
38. $\sqrt{18} \sqrt{14}$
39. $\sqrt{45} \sqrt{60}$
40. $\sqrt[3]{3} \sqrt[3]{18}$
41. $\sqrt{5b^3} \sqrt{10c^4}$
42. $\sqrt{2x^3y} \sqrt{12xy}$
43. $\sqrt[3]{y^4} \sqrt[3]{16y^5}$
44. $\sqrt[3]{5^2t^4} \sqrt[3]{5^4t^6}$
45. $\sqrt[3]{(b+3)^4} \sqrt[3]{(b+3)^2}$
46. $\sqrt[3]{(x+y)^3} \sqrt[3]{(x+y)^5}$

B

The speed that a car was traveling can be estimated by measuring its skid marks. The formula $r = 2\sqrt{5L}$ can be used, where r is the speed in mi/h and L is the length of the skid marks in feet. Estimate the speed of a car that left skid marks of

47. 20 ft
48. 70 ft
49. 156.8 ft
50. **Critical Thinking** Find two radical expressions whose simplified product is $5\sqrt{10}$.

Challenge

Here is a formula for finding *windchill temperature*, when T is actual temperature given in degrees Celsius and v is the wind speed in m/s. Find the windchill temperature for the given actual temperatures and wind speeds.

$$T_w = 33 - (10.45 + 10\sqrt{v} - v)(33 - T) \div 22$$

51. $T = 7^\circ\text{C}$, $v = 8$ m/s
52. $T = 0^\circ\text{C}$, $v = 12$ m/s
53. $T = -23^\circ\text{C}$,
 $v = 15$ m/s

Mixed Review

Factor. 54. $4x^2 + 6x + 2$ 55. $3y^2 - 14y - 5$ 56. $9a^2 - 3a$

Divide. 57. $(x^2 + 10x + 21) \div (x + 3)$ 58. $(3y^2 - 13y - 12) \div (y - 5)$