5.08 *Review of Radicals*

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ANSWERS TO ALL EXERCISES ARE INCLUDED AT THE END OF THIS PAGE

Simplify the radicals completely.

1. $\sqrt{12}$
2. $\sqrt{64x^2y^4}$
3. $\sqrt{28x^4y^6}$
4. $\sqrt{25x^3y^6}$
5. $\sqrt{50x^3y^7}$
6. $\sqrt{500x^{16}y^9}$
7. $\sqrt{3}+\sqrt{3}$
8. $\sqrt{3}-\sqrt{3}$
9. $5\sqrt{3}-13\sqrt{3}$
10. $\sqrt{3}+\sqrt{9}$
11. $\sqrt{40}+\sqrt{90}$
12. $\sqrt{8}+\sqrt{50}$
13. $\sqrt{54}+3\sqrt{72}$
14. $2\sqrt{45}-7\sqrt{20}$
15. $-7\sqrt{32}+3\sqrt{54}$
16. $5\sqrt{27}-8\sqrt{75}$
17. $6\sqrt{18}+5\sqrt{98}$
18. $-4\sqrt{28}-9\sqrt{63}$

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

20. $\sqrt{3} \cdot \sqrt{27}$

21. $4\sqrt{2} \cdot 5\sqrt{6}$

22. $\sqrt{15} \cdot \sqrt{21}$

23. $\sqrt{35} \cdot \sqrt{77}$

24. $\sqrt{22} \cdot \sqrt{55}$

25. $2\sqrt{5} \cdot 3\sqrt{5}$

26. $2\sqrt{5} \cdot 5\sqrt{30}$

27. $2\sqrt{35} \cdot 3\sqrt{55}$

28. $\sqrt{8} \cdot \sqrt{27}$

29. $\sqrt{12} \cdot 5\sqrt{45}$

30. $6\sqrt{8} \cdot 5\sqrt{40}$

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

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

33. $(2\sqrt{3} + 3\sqrt{2})(4\sqrt{5} - 5\sqrt{2})$

34. $(8\sqrt{5} - 3\sqrt{2})(5\sqrt{5} - 4\sqrt{2})$

35. $(\sqrt{5}+\sqrt{2})^2$

36. $(\sqrt{5}-\sqrt{2})^2$

37. $(3\sqrt{5}+2\sqrt{2})^2$

38. $(3\sqrt{5}-2\sqrt{2})^2$

REVIEW EXERCISES from Sections 5.05 - 5.06

In 39 - 47, rationalize the denominators and reduce the fractions completely.

39. $\dfrac{3}{\sqrt{2}}$

40. $\dfrac{2}{\sqrt{6}}$

41. $\dfrac{9\sqrt{5}}{\sqrt{3}}$

42. $\dfrac{12}{\sqrt{18}}$

43. $\dfrac{18}{\sqrt{12}}$

44. $\dfrac{8\sqrt{3}}{\sqrt{32}}$

45. $\frac{5x}{\sqrt{10x}}$

46. $\frac{10x}{\sqrt{5x}}$

47. $\frac{8x^3}{\sqrt{32x^3}}$

In 48 - 56, simplify each fraction completely.

48. $\frac{12\sqrt{3}}{18}$

49. $\frac{12+\sqrt{3}}{18}$

50. $\frac{12+6\sqrt{3}}{18}$

51. $\frac{12-8\sqrt{3}}{24}$

52. $\frac{8-\sqrt{8}}{8}$

53. $\frac{12+\sqrt{12}}{12}$

54. $\frac{8-4\sqrt{24}}{12}$

55. $\frac{6\sqrt{40}+8\sqrt{20}}{24}$

56. $\frac{9\sqrt{50}-18\sqrt{18}}{27}$

ANSWERS 5.08

p. 453 - 456:

1. $2\sqrt{3}$; 2. $8xy^2$; 3. $2x^2y^3\sqrt{7}$; 4. $5xy^3\sqrt{x}$; 5. $5xy^3\sqrt{2xy}$; 6. $10x^8y^4\sqrt{5y}$;
7. $2\sqrt{3}$; 8. 0 ; 9. $-8\sqrt{3}$; 10. $\sqrt{3}+3$; 11. $5\sqrt{10}$; 12. $7\sqrt{2}$; 13. $3\sqrt{6}+18\sqrt{2}$;
14. $-8\sqrt{5}$; 15. $-28\sqrt{2}+9\sqrt{6}$; 16. $-25\sqrt{3}$; 17. $53\sqrt{2}$; 18. $-35\sqrt{7}$; 19. $5\sqrt{2}$;
20. 9 ; 21. $40\sqrt{3}$; 22. $3\sqrt{35}$; 23. $7\sqrt{55}$; 24. $11\sqrt{10}$; 25. 30 ; 26. $50\sqrt{6}$;
27. $30\sqrt{77}$; 28. $6\sqrt{6}$; 29. $30\sqrt{15}$; 30. $240\sqrt{5}$; 31. 3 ; 32. $18+4\sqrt{15}$;
33. $8\sqrt{15}+12\sqrt{10}-10\sqrt{6}-30$; 34. $224-47\sqrt{10}$; 35. $7+2\sqrt{10}$; 36. $7-2\sqrt{10}$;
37. $53+12\sqrt{10}$; 38. $53-12\sqrt{10}$; 39. $\frac{3\sqrt{2}}{2}$; 40. $\frac{\sqrt{6}}{3}$; 41. $3\sqrt{15}$; 42. $2\sqrt{2}$;
43. $3\sqrt{3}$; 44. $\sqrt{6}$; 45. $\frac{\sqrt{10x}}{2}$; 46. $2\sqrt{5x}$; 47. $x\sqrt{2x}$; 48. $\frac{2\sqrt{3}}{3}$; 49. $\frac{12+\sqrt{3}}{18}$;
50. $\frac{2+\sqrt{3}}{3}$; 51. $\frac{3-2\sqrt{3}}{6}$; 52. $\frac{4-\sqrt{2}}{4}$; 53. $\frac{6+\sqrt{3}}{6}$; 54. $\frac{2-2\sqrt{6}}{3}$;
55. $\frac{3\sqrt{10}+4\sqrt{5}}{6}$; 56. $\frac{-\sqrt{2}}{3}$.

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