

1. Simplify: $\sqrt{x^6}$
2. Simplify: $\sqrt{x^{12}}$
3. Evaluate, if possible, the expression.
 $\sqrt[9]{-512}$
4. Evaluate, if possible, the expression.
 $\sqrt[5]{-32}$
5. Evaluate, if possible, the expression.
 $\sqrt[3]{-8}$
6. Evaluate, if possible, the expression.
 $\sqrt[3]{-8}$
7. Evaluate, if possible, the expression.
 $-\sqrt[3]{125}$
8. Evaluate, if possible, the expression.
 $-\sqrt[3]{27}$
9. Evaluate, if possible, the expression.
 $-\sqrt[4]{16}$
10. Evaluate, if possible, the expression.
 $-\sqrt[4]{256}$
11. Write the expression as a root. Assume the expression is defined.
 $x^{0.5}$

12. Write the expression as a root. Assume the expression is defined.

$$x^{0.2}$$

13. Write the expression as a root. Assume the expression is defined.

$$x^{1.25}$$

14. Write the expression as a root. Assume the expression is defined.

$$x^{1.5}$$

15. Simplify. Assume the variable represents a real number.

$$\sqrt{y^2}$$

16. Simplify. Assume the variable represents a real number.

$$\sqrt{u^2}$$

17. Simplify: $\sqrt[5]{x^{30}y^{15}}$

18. Simplify: $-\sqrt[5]{-x^{15}y^{15}}$

19. Simplify: $\sqrt[4]{625x^{16}y^{24}}$

20. Simplify: $\sqrt[4]{81x^{16}y^4}$

21. Simplify: $\sqrt{9x^3}$

22. Simplify: $\sqrt{100x^3}$

23. Simplify: $\sqrt{4}\sqrt{49}$

24. Simplify: $\sqrt{9}\sqrt{4}$

25. Simplify: $\sqrt[3]{4}\sqrt[3]{8}$

26. Simplify: $\sqrt[4]{8}\sqrt[4]{16}$

27. Simplify: $a^{7n/2} \cdot a^{-n/5}$

28. Simplify: $a^{4n/5} \cdot a^{-n/10}$

29. Simplify: $(x^{5n/6})^3$

30. Simplify: $(x^{4n/5})^2$

31. Simplify: $\sqrt[4]{27ab^3}\sqrt[4]{9a^5b^2}$

32. Simplify: $\sqrt[4]{27ab^3}\sqrt[4]{9a^5b^2}$

33. Simplify: $2\sqrt{10xy} \cdot 6\sqrt{5x^2y} \cdot 4\sqrt{8xy^2}$

34. Simplify: $2\sqrt{6xy} \cdot 2\sqrt{3x^2y} \cdot 5\sqrt{8xy^2}$

35. Simplify: $\sqrt{9a^{12}b^{52}}$

36. Simplify: $\sqrt{25a^{12}b^{60}}$

37. Simplify: $\sqrt[3]{-x^6y^6}$

38. Simplify: $-\sqrt[3]{x^3y^{24}}$

39. Simplify: $-\sqrt[4]{x^{12}y^{12}}$

40. Simplify: $-\sqrt[4]{x^{12}y^{20}}$

41. Simplify: $\sqrt{-100x^4y^2}$

42. Simplify: $\sqrt{-4x^4y^2}$

43. Simplify: $\sqrt[3]{2a^{11}b^{10}} \cdot \sqrt[3]{4a^{12}b^{11}} \cdot \sqrt[3]{8a^{14}b^{15}}$

44. Simplify: $\sqrt[3]{2a^{11}b^{10}} \cdot \sqrt[3]{4a^{12}b^{11}} \cdot \sqrt[3]{8a^{14}b^{15}}$

45. Simplify: $\sqrt[3]{512x^{12}}$

46. Simplify: $\sqrt[3]{216x^{30}}$

47. Simplify: $\sqrt[3]{-27x^{15}y^9}$

48. Simplify: $\sqrt[3]{-27x^{15}y^6}$

49. Simplify: $\sqrt[3]{x^2y} \sqrt[3]{192x^4y^2}$

50. Simplify: $\sqrt[3]{x^2y}\sqrt[3]{686x^4y^2}$

51. Simplify: $\left(\frac{9}{16}\right)^{-3/2}$

52. Simplify: $\left(\frac{49}{9}\right)^{-3/2}$

53. Simplify: $\sqrt{50x} - \sqrt{18x}$

54. Simplify: $\sqrt[3]{x^2y}\sqrt[3]{250x^4y^2}$

55. Simplify: $\left(\frac{25}{9}\right)^{-3/2}$

56. Simplify: $\left(\frac{25}{16}\right)^{-3/2}$

57. Simplify: $\sqrt{175x} - \sqrt{112x}$

58. Simplify: $\sqrt{162x} - \sqrt{18x}$

59. Simplify: $\sqrt{8x} - \sqrt{98x}$

Answer Key

1. x^3
2. x^6
3. -2
4. -2
5. -2
6. -2
7. -5
8. -3
9. -2
10. -4
11. \sqrt{x}
12. $\sqrt[5]{x}$
13. $\sqrt[4]{x^5}$
14. $\sqrt{x^3}$
15. $|y|$
16. $|u|$
17. x^6y^3
18. x^3y^3
19. $5x^4y^6$
20. $3x^4y$
21. $3x\sqrt{x}$
22. $10x\sqrt{x}$
23. 14
24. 6
25. $2\sqrt[3]{4}$
26. $2\sqrt[4]{8}$
27. $a^{33n/10}$
28. $a^{7n/10}$
29. $x^{5n/2}$
30. $x^{8n/5}$
31. $3ab\sqrt[4]{3a^2b}$
32. $3ab\sqrt[4]{3a^2b}$
33. $960x^2y^2$
34. $240x^2y^2$
35. $3a^6b^{26}$
36. $5a^6b^{30}$

37. $-x^2y^2$

38. $-x y^8$

39. $-x^3y^3$

40. $-x^3y^5$

41. Not a real number

42. Not a real number

43. $4a^{12}b^{12}\sqrt[3]{a}$

44. $4a^{12}b^{12}\sqrt[3]{a}$

45. $8x^4$

46. $6x^{10}$

47. $-3x^5y^3$

48. $-3x^5y^2$

49. $4x^2y\sqrt[3]{3}$

50. $7x^2y\sqrt[3]{2}$

51. $\frac{64}{27}$

52. $\frac{27}{343}$

53. $2\sqrt{2x}$

54. $5x^2y\sqrt[3]{2}$

55. $\frac{27}{125}$

56. $\frac{64}{125}$

57. $\sqrt{7x}$

58. $6\sqrt{2x}$

59. $-5\sqrt{2x}$