

EXERCISE 47

Each radicand is a perfect power. Find the specified root.

- | | | | | |
|---|--|--|--|---------------------------------|
| 1. $\sqrt{a^2}$. | 2. $\sqrt[3]{h^3}$. | 3. $\sqrt[4]{x^4}$. | 4. $\sqrt[5]{a^5}$. | 5. $\sqrt{x^4}$. |
| 6. $\sqrt{y^8}$. | 7. $\sqrt[3]{z^9}$. | 8. $\sqrt[3]{x^6}$. | 9. $\sqrt[3]{a^{15}}$. | 10. $\sqrt[4]{a^{12}}$. |
| 11. $\sqrt[5]{y^{15}}$. | 12. $\sqrt{z^{10}}$. | 13. $\sqrt{9y^2}$. | 14. $\sqrt{4z^4}$. | 15. $\sqrt[3]{8y^3}$. |
| 16. $\sqrt[3]{27h^3}$. | 17. $\sqrt{\frac{9}{16}}$. | 18. $\sqrt{\frac{36}{49}}$. | 19. $\sqrt[3]{\frac{8}{27}}$. | 20. $\sqrt[4]{\frac{81}{16}}$. |
| 21. $\sqrt[3]{\frac{27}{64}}$. | 22. $\sqrt[3]{\frac{1000}{27}}$. | 23. $\sqrt[5]{\frac{32}{243}}$. | 24. $\sqrt[3]{8y^6}$. | 25. $\sqrt[4]{16y^4}$. |
| 26. $\sqrt[4]{81x^8}$. | 27. $\sqrt[3]{-x^3}$. | 28. $\sqrt[3]{-27x^3}$. | 29. $\sqrt{y^4w^6}$. | |
| 30. $\sqrt[3]{a^9b^6}$. | 31. $\sqrt[3]{8a^6y^9}$. | 32. $\sqrt[4]{.0625}$. | 33. $\sqrt[3]{-8x^3y^{12}}$. | |
| 34. $\sqrt[5]{-32a^{10}}$. | 35. $\sqrt[4]{81x^8}$. | 36. $\sqrt[4]{.0256}$. | 37. $\sqrt[3]{\frac{216}{125}x^6}$. | |
| 38. $\sqrt[3]{-8x^3y^6}$. | 39. $\sqrt{.09x^8}$. | 40. $\sqrt[3]{125y^{12}}$. | 41. $\sqrt[3]{.125x^6}$. | |
| 42. $\sqrt{\frac{9a^4}{25y^8}}$. | 43. $\sqrt[3]{\frac{216}{x^6b^3}}$. | 44. $\sqrt[3]{\frac{-64}{a^6b^9}}$. | 45. $\sqrt[4]{\frac{16x^4}{a^4b^8}}$. | |
| 46. $\sqrt[4]{\frac{625a^8}{b^{12}c^{16}}}$. | 47. $\sqrt[5]{\frac{32x^{10}}{y^5}}$. | 48. $\sqrt[5]{\frac{-243}{a^5b^{10}}}$. | 49. $\sqrt[5]{\frac{-1}{32x^5}}$. | |

EXERCISE 50

Simplify by removing perfect powers from the radicand.

- | | | | | | |
|------------------------------------|---|--------------------------------------|--|--------------------------|-----------------------|
| 1. $\sqrt{27}$. | 2. $\sqrt{50}$. | 3. $\sqrt{28}$. | 4. $\sqrt{300}$. | 5. $\sqrt{700}$. | 6. $\sqrt{72}$. |
| 7. $\sqrt{45}$. | 8. $\sqrt{\frac{27}{100}}$. | 9. $\sqrt{.72}$. | 10. $\sqrt[3]{32}$. | 11. $\sqrt[3]{81}$. | 12. $\sqrt[3]{108}$. |
| 13. $\sqrt[3]{-5}$. | 14. $\sqrt[3]{-40}$. | 15. $\sqrt[4]{162}$. | 16. $\sqrt[5]{-96}$. | 17. $\sqrt[3]{-40}$. | |
| 18. $\sqrt{x^5}$. | 19. $\sqrt{a^9b^3}$. | 20. $\sqrt[3]{y^8}$. | 21. $\sqrt[4]{z^{19}}$. | 22. $\sqrt[5]{x^{13}}$. | |
| 23. $\sqrt{4a^6}$. | 24. $\sqrt{8y^5}$. | 25. $\sqrt[3]{8x^8}$. | 26. $\sqrt[3]{27x^{10}}$. | 27. $\sqrt[4]{16z^6}$. | |
| 28. $\sqrt{18x^3y^4}$. | 29. $\sqrt{75x^4y^9}$. | 30. $\sqrt{20x^5y^3}$. | 31. $\sqrt[3]{24u^4v^5}$. | | |
| 32. $\sqrt[3]{-27x^5}$. | 33. $\sqrt[3]{-a^4y^8}$. | 34. $\sqrt[5]{-x^6y^7}$. | 35. $\sqrt[3]{-128a^9}$. | | |
| 36. $\sqrt{\frac{4x^4}{9y^3}}$. | 37. $\sqrt{\frac{3a^6}{25y^4}}$. | 38. $\sqrt[3]{\frac{2x^3}{7y^5}}$. | 39. $\sqrt[3]{\frac{27x^4}{16a^6}}$. | | |
| 40. $\sqrt{\frac{81u^9}{25v^5}}$. | 41. $\sqrt[4]{\frac{16a^2b^6}{81u^4v^5}}$. | 42. $\sqrt[3]{\frac{27x^3}{4y^6}}$. | 43. $\sqrt[3]{\frac{16a^7}{x^6y^4}}$. | | |
-
- | | | | | |
|------------------------|---------------------|---------------------|------------------------|-------------------------|
| 1. a . | 11. y^3 . | 21. $\frac{2}{3}$. | 31. $2a^2y^3$. | 41. $.5x^2$. |
| 2. $3y$. | 12. $3y$. | 22. $\frac{3}{8}$. | 32. $-2xy^4$. | 42. $\frac{6}{bx^2}$. |
| 3. x . | 13. $3y$. | 23. $\frac{3}{8}$. | 33. $-2xy^4$. | 43. $\frac{6}{bx^2}$. |
| 4. x^2 . | 14. $2y$. | 24. $\frac{3}{8}$. | 34. $-2xy^4$. | 44. $\frac{6}{bx^2}$. |
| 5. x^2 . | 15. $2y$. | 25. $2y$. | 35. $3x^2$. | 45. $\frac{ab^2}{2x}$. |
| 6. x^2 . | 16. $2y$. | 26. $2y$. | 36. $3x^2$. | 46. $\frac{ab^2}{2x}$. |
| 7. $z^{\frac{2}{3}}$. | 17. $\frac{2}{3}$. | 27. $-x$. | 37. $\frac{5}{6}x^2$. | 47. $\frac{y}{2x^2}$. |
| 8. $z^{\frac{2}{3}}$. | 18. $\frac{2}{3}$. | 28. $-x$. | 38. $\frac{5}{6}x^2$. | 48. $\frac{y}{2x^2}$. |
| 9. a^5 . | 19. $\frac{3}{8}$. | 29. y^2w^3 . | 39. $.3x^4$. | 49. $-\frac{1}{2x}$. |
| 10. a^5 . | 20. $\frac{3}{8}$. | 40. y^2w^3 . | 40. y^2w^3 . | |
-
- Exercise 50. Page 119
- | | | | | |
|-------------------|-----------------------|-----------------------------|--|--|
| 1. $3\sqrt{3}$. | 11. $3\sqrt[3]{3}$. | 21. $z^4\sqrt[4]{z^3}$. | 31. $2uv\sqrt[3]{3uv^2}$. | 41. $\frac{3uv}{2b}\sqrt[4]{a^2b^2}$. |
| 2. $2\sqrt{7}$. | 12. $3\sqrt[3]{3}$. | 22. $z^4\sqrt[4]{z^3}$. | 32. $2uv\sqrt[3]{3uv^2}$. | 42. $\frac{3uv}{2b}\sqrt[4]{a^2b^2}$. |
| 3. $2\sqrt{7}$. | 13. $-\sqrt[3]{5}$. | 23. $2a^3$. | 33. $-ay^2\sqrt[3]{ay^2}$. | 43. $-\frac{xy}{2a^2}\sqrt[3]{\frac{y}{2a}}$. |
| 4. $10\sqrt{7}$. | 14. $3\sqrt[4]{2}$. | 24. $2a^3$. | 34. $-ay^2\sqrt[3]{ay^2}$. | 44. $-\frac{xy}{2a^2}\sqrt[3]{\frac{y}{2a}}$. |
| 5. $10\sqrt{7}$. | 15. $3\sqrt[4]{2}$. | 25. $2x^2\sqrt[3]{x^2}$. | 35. $-4a^3\sqrt[3]{2}$. | 45. $-\frac{xy}{2a^2}\sqrt[3]{\frac{y}{2a}}$. |
| 6. $3\sqrt{5}$. | 16. $2\sqrt[3]{5}$. | 26. $2x^2\sqrt[3]{x^2}$. | 36. $5y^2\sqrt[3]{2}$. | 46. $-\frac{xy}{2a^2}\sqrt[3]{\frac{y}{2a}}$. |
| 7. $3\sqrt{5}$. | 17. $-2\sqrt[3]{5}$. | 27. $2z\sqrt[4]{z^2}$. | 37. $\frac{5y^2}{a^3}\sqrt[3]{2}$. | 47. $-\frac{xy}{2a^2}\sqrt[3]{\frac{y}{2a}}$. |
| 8. $3\sqrt{5}$. | 18. $-2\sqrt[3]{5}$. | 28. $2z\sqrt[4]{z^2}$. | 38. $\frac{5y^2}{a^3}\sqrt[3]{2}$. | 48. $-\frac{xy}{2a^2}\sqrt[3]{\frac{y}{2a}}$. |
| 9. $6\sqrt{2}$. | 19. $a^4b\sqrt{ab}$. | 29. $5x^2y^4\sqrt[3]{3y}$. | 39. $\frac{3x}{3}\sqrt[3]{\frac{2a^2}{x}}$. | 49. $-\frac{1}{2x}$. |
| 10. $6\sqrt{2}$. | 20. $a^4b\sqrt{ab}$. | 40. $5x^2y^4\sqrt[3]{3y}$. | 40. $5x^2y^4\sqrt[3]{3y}$. | |
- Exercise 47. Page 111