

1. Simplify the expression. $x \cdot x^4$	2. Simplify the expression. $n^2 \cdot n^2$	3. Simplify the expression. $m^4 \cdot m^8$
4. Simplify the expression. $3y^{-5} \cdot 5y^{-8}$	5. Simplify the expression. $4m^9 \cdot 2m^3$	6. Simplify the expression. $3m^{-1} \cdot 5m^6$
7. Simplify the expression. $\frac{x^3}{x^7}$	8. Simplify the expression. $\frac{a^5}{a^6}$	9. Simplify the expression. $\frac{b^9}{b^9}$
10. Simplify the expression. $\frac{9x^5}{3x^6}$	11. Simplify the expression. $\frac{12b}{4b^4}$	12. Simplify the expression. $\frac{15b^7}{3b^{-1}}$
13. Simplify the expression. $(y^4)^8$	14. Simplify the expression. $(n^2)^2$	15. Simplify the expression. $(y^6)^2$

16. Simplify the expression. $(3x^{-4})^2$	17. Simplify the expression. $(2n^0)^2$	18. Simplify the expression. $(3y^3)^3$
19. Simplify the expression. m^{-5}	20. Simplify the expression. m^{-9}	21. Simplify the expression. m^{-2}
22. Simplify the expression. $\frac{3y \cdot 2y^0}{3y^8}$	23. Simplify the expression. $\frac{2b^4 \cdot 5b^{-9}}{5b^7}$	24. Simplify the expression. $\frac{5n^0 \cdot 4n^{-8}}{5n^{-3}}$
25. Simplify the expression. $(2n \cdot n^4)^2$	26. Simplify the expression. $(n^{-9} \cdot 3n^4)^2$	27. Simplify the expression. $(a^5 \cdot 2a^{-5})^4$
28. Simplify the expression. $\left(\frac{10a^{-5}}{2a^{-7}}\right)^3$	29. Simplify the expression. $\left(\frac{12m^7}{4m^9}\right)^4$	30. Simplify the expression. $\left(\frac{8y^8}{2y^4}\right)^3$

31. Simplify the expression. $\left(\frac{18y^9}{2y^4}\right)^2$	32. Simplify the expression. $\left(\frac{20a^7}{4a^{-8}}\right)^3$	33. Simplify the expression. $\left(\frac{24x^{-5}}{4x^{-3}}\right)^2$
34. Simplify the expression. $\left(\frac{2b^9 \cdot 2b^3}{4b^3}\right)^2$	35. Simplify the expression. $\left(\frac{2m^8 \cdot 2m^{-4}}{4m^6}\right)^2$	36. Simplify the expression. $\left(\frac{4n^{-4} \cdot 5n^{-3}}{2n^8}\right)^2$
37. Simplify the expression. $\left(\frac{9x^{-9} \cdot 4x^{-6}}{4x^9}\right)^3$	38. Simplify the expression. $\left(\frac{4n^{-3} \cdot 3n^5}{2n^9}\right)^2$	39. Simplify the expression. $\left(\frac{9n^4 \cdot 6n^{-7}}{6n^5}\right)^2$
40. Rewrite the expression in the other form: exponential form as a radical, radical form as an exponent. $\sqrt[5]{x}$	41. Rewrite the expression in the other form: exponential form as a radical, radical form as an exponent. $4^{\frac{7}{5}}$	42. Rewrite the expression in the other form: exponential form as a radical, radical form as an exponent. $\sqrt[5]{8^3}$
43. Rewrite the expression in the other form: exponential form as a radical, radical form as an exponent. $a^{\frac{5}{6}}$	44. Rewrite the expression in the other form: exponential form as a radical, radical form as an exponent. $9^{\frac{3}{2}}$	45. Rewrite the expression in the other form: exponential form as a radical, radical form as an exponent. $\sqrt[4]{x^7}$

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Answer Key

1. x^5	2. n^4	3. m^{12}
4. $15/y^{13}$	5. $8m^{12}$	6. $15m^5$
7. $1/x^4$	8. $1/a$	9. 1
10. $3/x$	11. $3/b^3$	12. $5b^8$
13. y^{32}	14. n^4	15. y^{12}
16. $9/x^8$	17. 4	18. $27y^9$
19. $1/m^5$	20. $1/m^9$	21. $1/m^2$
22. $2/y^7$	23. $2/b^{12}$	24. $4/n^5$
25. $4n^{10}$	26. $9/n^{10}$	27. 16
28. $125a^6$	29. $81/m^8$	30. $64y^{12}$
31. $81y^{10}$	32. $125a^{45}$	33. $36/x^4$
34. b^{18}	35. $1/m^4$	36. $100/n^{30}$
37. $729/x^{72}$	38. $36/n^{14}$	39. $81/n^{16}$
40. $x^{\frac{1}{5}}$	41. $\sqrt[5]{4^7}$	42. $8^{\frac{3}{5}}$
43. $\sqrt[6]{a^5}$	44. $\sqrt[9]{3}$	45. $x^{\frac{7}{4}}$