

1. Simplify: $y^3 (y^2 y^4)$
2. Simplify: $4x^2 (3x^5)$
3. Simplify: $(-4x^3)(-5x)$
4. Simplify: $(a^3)^7$
5. Simplify: $(2y^3 y)^2 (y^2)^2$
6. Simplify: $(-3x^2 y^4 z)^2$
7. Simplify: $\left(\frac{x^2}{y^3}\right)^5$
8. Simplify: $\left(\frac{-2a}{b}\right)^5$
9. Simplify: $\frac{b^4 b^5}{b^2 b^3}$
10. Simplify: $\frac{18(x^3 y^2)(xy^3)}{6(x^2 y^2)(xy^2)}$
11. Simplify: $\frac{20(r^4 s^3)^4}{6(rs^3)^3}$
12. Simplify: $\left(\frac{y^3 y}{2yy^2}\right)^3$
13. Simplify: x^{-2}
14. Simplify: $(2y)^{-4}$
15. Simplify: $(x^2 y^{-3})^{-4}$
16. Simplify: $(m^2 n^3)^{-2}$
17. Simplify: $\frac{x^{12} x^{-7}}{x^3 x^4}$
18. Simplify: $\left(\frac{x^5}{y^{-2}}\right)^{-2}$
19. Simplify: $\left(\frac{-2x^4 x^{-3}}{x^{-3} x^7}\right)^2$
20. Simplify: $\frac{(2x^{-2})^{-2}}{4(x^2 y)^{-1}}$
21. Simplify, then write your answer in scientific notation: $(3.4 \times 10^{-3})(2.1 \times 10^4)$
22. Simplify, then write your answer in scientific notation: $\frac{9.3 \times 10^2}{3.1 \times 10^{-2}}$
23. The distance from Mercury to the sun is approximately 3.6×10^7 miles. Use scientific notation to express this distance in feet. (5280 feet = 1 mile.)
24. Simplify: $-4a^2 bc + 5a^2 bc + 7a^2 bc$
25. Simplify: $(5b - 7) - (3b + 5)$
26. Simplify: $(3a^2 - 2a + 4) - (a^2 - 3a + 7)$
27. Simplify:
 $3y(xy + y) - 2y^2(x - 4 + y) + 2(y^3 + y^2)$
28. Simplify: $3y^3(2y^2 - 7y - 8)$
29. Simplify: $(3x - 2)(2x + 1)$
30. Simplify: $(2a + 4)(3a - 5)$
31. Simplify: $(2t + 3s)(3t - s)$
32. Simplify: $(3a - 2b)(4a + b)$
33. Simplify: $(x + 4)(x + 4)$

34. Simplify: $(r - 4)(r - 4)$

35. Simplify: $(6p + 5q)(6p - 5q)$

36. Simplify: