

Simplify each expression.

1. $a^6 \cdot a^3$

2. $(x^5)^2$

3. $(4a^2b^3)^5$

4. $\frac{x^8}{x^6}$

5. $\frac{x^5}{x^8}$

6. $\frac{x^6}{x^6}$

7. $\left(\frac{4a^3}{2b^4}\right)^2$

8. $(2^3x^2)^5$

9. $(x^4y^7)^{-3}$

10. $\frac{x^{11}y^{10}}{x^{-3}y^{-1}}$

11. $-3x^{-4}y^0$

12. $\frac{5x^3y^9}{20x^2y^{-2}}$

13. $\frac{x^5}{x^{-2}}$

14. $\frac{x^5y^2}{x^4y^0}$

15. $(x^3)^0$

16. $(10x^5y^3)^{-3}$

17. $\frac{x^{-1}y}{xy^{-2}}$

18. $(4x^2y^5)^{-2}$

19. $\frac{2x^2y}{6xy^{-1}}$

20. $\frac{xy^9}{3y^{-2}} \cdot \frac{-7y}{21x^5}$

21. $\frac{12xy}{7x^4} \cdot \frac{7x^5y^2}{4y}$