

Written Exercises

Simplify.

$$1. m^{-8}m^3$$

$$5. \frac{6mn^2}{3m}$$

$$9. \frac{15b^9}{3b^{12}}$$

$$13. \frac{2x^{-3}}{6(x^2)^2}$$

$$17. \frac{4}{x^0 + y^0}$$

$$21. \frac{(3c^2)^2(-d^5)}{-45c^7d^3}$$

$$25. \frac{3^{xy+5}}{3^{xy}}$$

$$29. \frac{(x+4)^3}{(x+4)^7}$$

$$33. (x^3y^2)^{-1}$$

$$37. \frac{2m}{n^{-1}}$$

$$41. \frac{-15r^5s^8(r^3s^2)}{45r^4s}$$

$$2. r^{-2}r^4$$

$$6. \frac{an^6}{n^5}$$

$$10. \frac{4x^3}{28x^5}$$

$$14. \frac{8(m^{-2})^2}{4m^{-2}}$$

$$18. \frac{-15r^5s^2}{5r^5s^{-4}}$$

$$22. \frac{-66p^3(mp)^{10}}{33(mp)^2}$$

$$26. \frac{r^{2a}}{r^{2a-3}}$$

$$30. \frac{3(x-7)^6}{(x-7)^{10}}$$

$$34. (m^4n^5)^{-2}$$

$$38. \frac{5x}{y^{-1}}$$

$$42. \frac{-3w^6t^7}{(-27w^3t^2)(wt)^2}$$

$$3. \frac{12n^8}{4n^3}$$

$$7. \frac{xy^7}{x^4}$$

$$11. \frac{12b^4}{60b^6}$$

$$15. \frac{16b^6c^5}{4b^4c^2}$$

$$19. \frac{-27w^3t^7}{-3w^3t^{12}}$$

$$23. \frac{20n^5m^9}{20nm^7}$$

$$27. \frac{x^{3a}}{x^{3a-2}}$$

$$31. \frac{2(x+3)^4}{10(x+3)^2}$$

$$35. 5^{-3}b^3x^4y^{-1}$$

$$39. \frac{3m^{-4}}{4^{-1}m^{-2}}$$

$$43. \frac{(-2r^3)^2(r^{-2})^{-1}}{(r^2)^{-3}}$$

$$4. \frac{-24s^8}{2s^5}$$

$$8. \frac{48a^8}{12a^{11}}$$

$$12. \frac{-20y^5}{40y^2}$$

$$16. \frac{1}{m^0 + n^0}$$

$$20. \frac{-2a^3b^6}{24a^2b^2}$$

$$24. \frac{5^{2x}}{5^{2x+2}}$$

$$28. \frac{16b^6c^5}{(2b^2c)^2}$$

$$32. \frac{2(y^2-5)^3}{8(y^2-5)^5}$$

$$36. \left(\frac{2}{3}\right)^{-1}x^3y^0z^{-4}$$

$$40. \frac{2^{-1}x^5}{3x^{-2}}$$

$$44. \frac{(4x^3y)(4^2x^{-1}y)}{4^3xy^2}$$