

## Written Exercises

Simplify. Assume that no denominator equals 0.

- A**
- |                              |  |   |                                 |                                 |
|------------------------------|--|---|---------------------------------|---------------------------------|
| 1. $\frac{42}{63}$           | 2. $\frac{54}{72}$                     | 3. $\frac{10^4}{10^6}$                  | 4. $\frac{10^9}{10^7}$          | 5. $\frac{12a}{3a}$             |
| 6. $\frac{10m}{5m}$          | 7. $\frac{6 \cdot 10^5}{3 \cdot 10^3}$ | 8. $\frac{12 \cdot 10^3}{4 \cdot 10^4}$ | 9. $\frac{4x^5}{8x}$            | 10. $\frac{3n^7}{15n^3}$        |
| 11. $\frac{12y^3}{4xy}$      | 12. $\frac{3r^2s}{9rs^2}$              | 13. $\frac{-9x^2y^3}{12xy^2}$           | 14. $\frac{-6pq^2}{-15pq}$      | 15. $\frac{-28cd^3}{-21bd^2}$   |
| 16. $\frac{42yz^4}{-48xz^3}$ | 17. $\frac{xy^2z^3}{x^3y^2z}$          | 18. $\frac{r^2s^4t}{r^2st^3}$           | 19. $\frac{32a^2bc^3}{20abc}$   | 20. $\frac{39x^3y^2z}{52x^2y}$  |
| 21. $\frac{(2r)^4}{2r^4}$    | 22. $\frac{7m^2}{(7m)^2}$              | 23. $\frac{(3t^2)^3}{(3t^3)^2}$         | 24. $\frac{(5a^2)^3}{(5a^3)^2}$ | 25. $\frac{(2ab)^2}{2ab^2}$     |
| 26. $\frac{(3mn)^2}{3mn^2}$  | 27. $\frac{(-z)^9}{(-z)^6}$            | 28. $\frac{(-a)^7}{(-a)^4}$             | 29. $\frac{(-xy)^9}{xy^9}$      | 30. $\frac{(-t^4)^3}{(-t^2)^5}$ |

Find the missing factor.

**Sample**  $48x^3y^2z^4 = (3xy^2z)(\underline{\quad})$

**Solution**  $\frac{48x^3y^2z^4}{3xy^2z} = 16x^2z^3$

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|--|--|
| 31. $6t^4 = (2t)(\underline{\quad})$           | 32. $12w^6 = (3w^2)(\underline{\quad})$    |
| 33. $9a^3b^4 = (3a^2b^2)(\underline{\quad})$   | 34. $18pq^3 = (6pq^3)(\underline{\quad})$  |
| 35. $-35x^3y^5 = (7x^2y)(\underline{\quad})$   | 36. $-28r^4s^3 = (-7r)(\underline{\quad})$ |
| 37. $48c^5d^4 = (-3c^3d^2)(\underline{\quad})$ | 38. $72h^3k = (-8hk)(\underline{\quad})$   |
- B**
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|---|--|
| 39. $(3a^3b^2)^3 = (3a^3b^2)^2(\underline{\quad})$  | 40. $(2s^3t)^5 = (2s^3t)^3(\underline{\quad})$     |
| 41. $(x^2y^3)^3 = (x^4y^5)(\underline{\quad})$      | 42. $(2c^3d^2)^5 = (2c^2d^2)^4(\underline{\quad})$ |
| 43. $36r^5s^7 = (2r^3s)(6s^4)(\underline{\quad})$   | 44. $48p^5q^4 = (2pq^2)(4pq)(\underline{\quad})$   |
| 45. $72x^5y^5 = (2x^2y)^2(3y^3)(\underline{\quad})$ | 46. $75a^6b^5 = (ab)^3(5a)^2(\underline{\quad})$   |

Find the GCF of each pair of monomials.

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|----------------------------------|----------------------------------|
| 47. $48a^2bc^3, 72ab^3c^2$       | 48. $36x^2y^2z^2, 24xy^2z^3$     |
| 49. $25p^2q^3, 15p^2q^2, 35pq^4$ | 50. $56r^4s^3, 28r^3s^2, 42r^3s$ |
| 51. $(x + y)(x - y), 2x(x + y)$  | 52. $4p^2(p - 1), 6p(p + 1)^2$   |

Simplify. Assume that no denominator equals 0.

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|-----------------------------------|-----------------------------------|--|--|
| 53. $\frac{(a + b)^3}{(a + b)^2}$ | 54. $\frac{(w + x)^4}{(w + x)^5}$ | 55. $\frac{(x + y)(x - y)}{(x + y)^2}$ | 56. $\frac{(r - s)^2}{(r + s)(r - s)}$ |
|-----------------------------------|-----------------------------------|--|--|