

Exercises [A-1]

Simplify where possible. If the expression is already in its simplest form, say so.

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| 1. $x^6 \cdot x^2$ | 17. $y^2 + y^6$ | 32. $bc^3d^3 + bcd$ |
| 2. $a^3 \cdot a^5$ | 18. $\frac{2z^4}{z^8}$ | 33. $(-6x^2y) \div (3xy)$ |
| 3. $b^2 + b$ | 19. $2x \cdot 3y^2$ | 34. $-5pq^2 + 5p$ |
| 4. $b^2 \cdot b$ | 20. $2x + 3y^2$ | 35. $-5pq^2 \div 5pq$ |
| 5. $3c^3 + c^3$ | 21. $b + b + b^2$ | 36. $(5pq^2) \div (-pq)$ |
| 6. $3c^3 \cdot c^3$ | 22. $b \cdot b \cdot b^2$ | 37. $\frac{7abc}{14a^2b^2c^2}$ |
| 7. $3a^3 \cdot 3a^2$ | 23. $6y^5 \cdot 2y$ | 38. $\frac{-16a^6b^7}{4ab^2}$ |
| 8. $x^4 \cdot 2x^2$ | 24. $ax \cdot ax^2$ | 39. $8x \cdot \frac{3}{4}$ |
| 9. $34a^3 + 2$ | 25. $(-2p^3)(3p^2)$ | 40. $6a \cdot \frac{a}{3}$ |
| 10. $x^6 \div x^3$ | 26. $(-2a^2)(2ab)$ | 41. $3y \cdot \left(-\frac{3}{y}\right)$ |
| 11. $a^4 \div a$ | 27. $(2y^2)^2$ | 42. $5x \cdot \frac{x^2}{5}$ |
| 12. $8z^3 + 2z^2$ | 28. $(-7a^3)^2$ | 43. $10x \cdot \frac{3}{2x}$ |
| 13. $25a^5 + 5a^2$ | 29. $\left(\frac{x}{3}\right)^2$ | |
| 14. $27b^3 + 2b^3$ | 30. $xy \cdot 2xy \cdot 2x^2y^2$ | |
| 15. $-24r^4 \div 6r^2$ | 31. $-5x^3 + 2x^2$ | |
| 16. $\frac{x}{x^6}$ | | |

44. $2b^2$ is a factor of $14ab^3$. What is the other factor?
 45. $7a^2c^2$ is a factor of $7a^4c^2$. What is the other factor?
 46. $5x^3y^2$ is a factor of $125x^4y^2$. What is the other factor?
 47. $19xy^3$ is a factor of $38xy^3$. What is the other factor?

Simplify:

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| 48. $2x(2\frac{1}{2}x)$ | 54. $(3x)(\frac{2}{3}x)$ | 60. $6x + \frac{1}{2}x$ |
| 49. $3y(3\frac{1}{3}y)$ | 55. $(4y)(\frac{1}{2}y^2)$ | 61. $6x^2 \div \frac{1}{3}x$ |
| 50. $4x(5\frac{1}{2}x^2)$ | 56. $(12m^2)(\frac{3}{4}m)$ | 62. $\frac{1}{2}x^3 + \frac{1}{3}x^2$ |
| 51. $6x^3(\frac{1}{3}x)$ | 57. $(7a)(\frac{1}{7}a^2)$ | 63. $5y + 2\frac{1}{2}y$ |
| 52. $5y^2(\frac{1}{5}y^3)$ | 58. $(8r)(2\frac{1}{2}r^2)$ | 64. $7m^4 + 3\frac{1}{2}m^2$ |
| 53. $\left(\frac{2x}{3}\right)^2$ | 59. $(5ab^2)^2$ | 65. $5(ab^2)^2$ |

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| <u>1.</u> x^8 | <u>17.</u> $\frac{1}{y^4}$ | <u>33.</u> $-2x$ | <u>49.</u> $10y^2$ |
| <u>2.</u> a^8 | <u>18.</u> $\frac{2}{z^4}$ | <u>34.</u> $-q^2$ | <u>50.</u> $22x^3$ |
| <u>3.</u> Simplest form | <u>19.</u> $6xy^2$ | <u>35.</u> $-q$ | <u>51.</u> $2x^4$ |
| <u>4.</u> b^3 | <u>20.</u> Simplest form | <u>36.</u> $-5q$ | <u>52.</u> y^5 |
| <u>5.</u> $4c^3$ | <u>21.</u> $2b + b^2$ | <u>37.</u> $\frac{1}{2abc}$ | <u>53.</u> $\frac{4}{9}x^2$ |
| <u>6.</u> $3c^6$ | <u>22.</u> b^4 | <u>38.</u> $-4a^5b^5$ | <u>54.</u> $2x^2$ |
| <u>7.</u> $9a^5$ | <u>23.</u> $12y^6$ | <u>39.</u> $6x$ | <u>55.</u> $2y^3$ |
| <u>8.</u> $2x^6$ | <u>24.</u> a^2x^3 | <u>40.</u> $2a^2$ | <u>56.</u> $9m^3$ |
| <u>9.</u> $17a^3$ | <u>25.</u> $-6p^5$ | <u>41.</u> -9 | <u>57.</u> a^3 |
| <u>10.</u> x^3 | <u>26.</u> $-4a^3b$ | <u>42.</u> x^3 | <u>58.</u> $20r^3$ |
| <u>11.</u> a^3 | <u>27.</u> $4y^4$ | <u>43.</u> 15 | <u>59.</u> $25a^2b^4$ |
| <u>12.</u> $4z$ | <u>28.</u> $49a^6$ | <u>44.</u> $7ab$ | <u>60.</u> 12 |
| <u>13.</u> $5a^3$ | <u>29.</u> $\frac{x^2}{9}$ | <u>45.</u> a^2 | <u>61.</u> $18x$ |
| <u>14.</u> $13\frac{1}{2}$ | <u>30.</u> $4x^4y^4$ | <u>46.</u> $25x$ | <u>62.</u> $\frac{3}{2}x$ |
| <u>15.</u> $-4r^2$ | <u>31.</u> $-2\frac{1}{2}x$ | <u>47.</u> 2 | <u>63.</u> 2 |
| <u>16.</u> $\frac{1}{x^5}$ | <u>32.</u> c^2d^2 | <u>48.</u> $5x^2$ | <u>64.</u> $2m^2$ |

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| <u>1.</u> $3ab$ | <u>9.</u> $6a^3$ | <u>17.</u> $6p^4q^4r^4$ | <u>25.</u> $-10cd^2$ |
| <u>2.</u> Simplest form | <u>10.</u> 3 | <u>18.</u> $2a^3b^2$ | <u>26.</u> $\frac{2z}{3x^2}$ |
| <u>3.</u> $4p^5$ | <u>11.</u> $4x^2y$ | <u>19.</u> $-q$ | <u>27.</u> $\frac{2c}{b}$ |
| <u>4.</u> a | <u>12.</u> $12b^5$ | <u>20.</u> q | <u>28.</u> $\frac{3c^2}{2ab}$ |
| <u>5.</u> $2x^3$ | <u>13.</u> $-25x^6$ | <u>21.</u> Simplest form | <u>29.</u> $7z$ |
| <u>6.</u> $6a$ | <u>14.</u> $9a^4b^2$ | <u>22.</u> Simplest form | <u>30.</u> -48 |
| <u>7.</u> Simplest form | <u>15.</u> $\frac{b^4}{4}$ | <u>23.</u> x^2y | <u>31.</u> $7s$ |
| <u>8.</u> $6a^2$ | <u>16.</u> $-15a^4b^3c^5$ | <u>24.</u> y | |

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| <u>1.</u> $9x^2 - 4x - 9$ | <u>3.</u> $9x + y$ | <u>5.</u> $8a^2 + 5$ |
| <u>2.</u> $3y^3 - 2y - 1$ | <u>4.</u> $4a^2b + b^3$ | <u>6.</u> $-2x^2 + 5x + 16$ |