

$$\begin{aligned} \text{Example 3 } (-3a^3b^2)(5ab^4) &= (-3 \cdot 5)(a^3 \cdot a)(b^2 \cdot b^4) \\ &= -15a^4b^6 \quad \text{Answer} \end{aligned}$$

$$\begin{aligned} \text{Example 4 } \frac{20x^2y}{3} \cdot \frac{12x^3y^5}{5} &= \left(\frac{20}{3} \cdot \frac{12}{5}\right)(x^2 \cdot x^3)(y \cdot y^5) \\ &= 16x^5y^6 \quad \text{Answer} \end{aligned}$$

$$\begin{aligned} \text{Example 5 } (3x^4y^6)(-2x^2y) + (8x^3y^2)(x^3y^5) &= -6x^6y^7 + 8x^6y^7 \\ &= 2x^6y^7 \quad \text{Answer} \end{aligned}$$

## Oral Exercises

Simplify.

- |                        |                       |                            |                            |
|------------------------|-----------------------|----------------------------|----------------------------|
| 1. $x^2 \cdot x^5$     | 2. $t^4 \cdot t^3$    | 3. $y^2 \cdot y \cdot y^3$ | 4. $c \cdot c^6 \cdot c^3$ |
| 5. $(2s)(5s)$          | 6. $(3t)(4t)$         | 7. $(ab^2)(a^2b)$          | 8. $(x^2y)(xy^3)$          |
| 9. $(2x^2)(3x^3)$      | 10. $(4x^4)(5x^5)$    | 11. $(2ab^3)(a^3b)$        | 12. $(3mn)(mn^4)$          |
| 13. $(5x^5y)(3x^2y^2)$ | 14. $(4y^6z)(2yz^4)$  | 15. $(-3s)(7s^2)$          | 16. $(-c^3)(-3c^2)$        |
| 17. $(x^2y^3)(x^3y)$   | 18. $(r^2s^2)(2rs^3)$ | 19. $(-t^3)(-t)^3$         | 20. $(-x^2)(-x)^2$         |

## Written Exercises

Simplify.

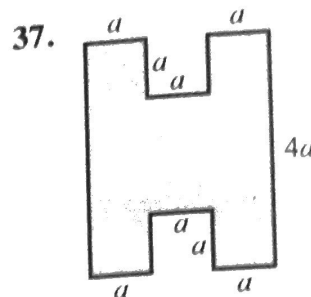
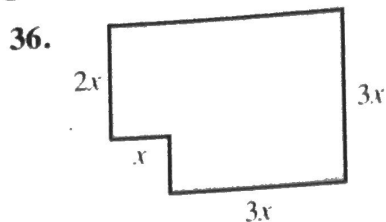
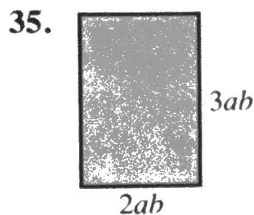
- |  |  |                              |
|--|--|------------------------------|
| <b>A</b> 1. $n^3 \cdot n^5$                                  | 2. $a^2 \cdot a^2$                             | 3. $x^3 \cdot x^4 \cdot x^2$ |
| 4. $n^2 \cdot n^2 \cdot n$                                   | 5. $(2x^2)(5x^5)$                              | 6. $(5a^5)(6a^6)$            |
| 7. $(m^2n)(mn^4)$  | 8. $(y^3z)(y^2z^3)$                            | 9. $(2ab)(3ab^5)$            |
| 10. $(5x^2y)(3x^3y^4)$                                       | 11. $(4x^5)(-3x^2)$                            | 12. $(5y^3)(-2y^4)$          |
| 13. $(-3xy^3)(-2x^3y)$                                       | 14. $(3r^2s^3)(-5r^3s)$                        | 15. $(5a^2b^3c)(2ab^4c^2)$   |
| 16. $(3y^3z)(4y^4z^2)$                                       | 17. $(2p^2q)(3pq)(4q)$                         | 18. $(ab^2)(5a^2b^3)(3a^3)$  |
| 19. $(-x^2y^3)(3xy^2)(-2x^3y)$                               | 20. $(-r^2s)(-3rs^3)(-s^2)$                    |                              |
| 21. $\left(\frac{2}{3}t^4\right)\left(\frac{3}{2}t^2\right)$ | 22. $\left(\frac{2}{7}a^2\right)(21a^5)$       |                              |
| 23. $\frac{15a^3b}{2} \cdot \frac{8ab^2}{10}$                | 24. $\frac{4h^3k^2}{7} \cdot \frac{21hk^5}{2}$ |                              |
| 25. $(3x^3)\left(\frac{1}{6}x^2\right)(8x)$                  | 26. $(8c^2)(-d)\left(-\frac{1}{4}cd^2\right)$  |                              |
| 27. $(3p^3q)\left(-\frac{5}{6}q^3\right)(-p^4)$              | 28. $(-a^3b)(-a^2b^2)(-ab^3)$                  |                              |
| 29. $(4xy)(2xy^3)(-2y^2)$                                    | 30. $(5b^4)(-3a^2b)(-a^3)$                     |                              |

Simplify.

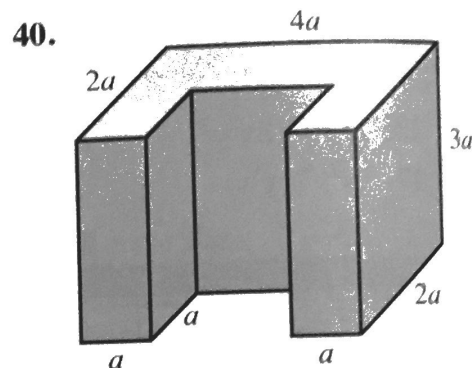
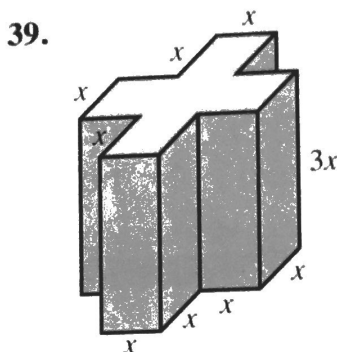
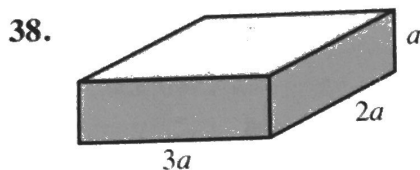
**B** 31.  $(5x^2)(2x^3) + (3x)(4x^4)$   
 33.  $(3a^5)(5a^3) - (6a^2)(a^6)$

32.  $(2y)(4y^3) + (3y^2)(5y^2)$   
 34.  $(6s^5)(2s^2) - (3s^4)(4s^3)$

Find the perimeter and the area of each shaded region.  
 (Area of rectangle = length  $\times$  width.)



Find the total surface area of each solid.  
 (The total surface area of a solid is the sum of the areas of all its faces.)



Simplify.

**C** 41.  $a^m \cdot a^m$   
 44.  $5^x \cdot 5^4$   
 47.  $a^x \cdot a^3$   
 50.  $5^{2n} \cdot 5^{n+2} \cdot 5^n$

42.  $x^{3n} \cdot x^n$   
 45.  $4^2 \cdot 4^{x-2}$   
 48.  $x^2 \cdot x^n$   
 51.  $(nx^5)(5x^5)$

43.  $3^p \cdot 3^q$   
 46.  $(-2)(-2)^{x-2}$   
 49.  $2^{x-1} \cdot 2^{x+4}$   
 52.  $(3t^k)(kt^3)$

## Mixed Review Exercises

Simplify.

1.  $4 + 2^2$   
 4.  $3 \cdot 7^2$

2.  $(4 + 2)^2$   
 5.  $(3 \cdot 7)^2$

3.  $3p^2 + 4q^2 - 2p^2q - q^2$   
 6.  $3x^2 - 4x + 5 + 6x + 4x^2$

Solve.

7.  $4(y + 3) = 3y$   
 10.  $\frac{n}{5} + 3 = 6$

8.  $15z = 30 + 10z$   
 11.  $2(x - 4) = 6$

9.  $7n - 5 = 2n$   
 12.  $\frac{y}{2} - 1 = 3$