

Practice 12-3

Exponents and Multiplication

Write each expression using a single exponent.

1. $3^2 \cdot 3^5$

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

3. $a^1 \cdot a^2$

4. $(-y)^3 \cdot (-y)^2$

5. $(3x) \cdot (3x)$

6. $4.5^8 \cdot 4.5^2$

7. $3^3 \cdot 3 \cdot 3^4$

8. $x^2y \cdot xy^2$

9. $5x^2 \cdot x^6 \cdot x^3$

Find each product. Write the answers in scientific notation.

10. $(3 \times 10^4)(5 \times 10^6)$

11. $(7 \times 10^2)(6 \times 10^4)$

12. $(4 \times 10^5)(7 \times 10^8)$

13. $(9.1 \times 10^6)(3 \times 10^9)$

14. $(8.4 \times 10^9)(5 \times 10^7)$

15. $(5 \times 10^3)(4 \times 10^6)$

16. $(7.2 \times 10^8)(2 \times 10^3)$

17. $(1.4 \times 10^5)(4 \times 10^{11})$

Replace each ? with =, <, or >.

18. 3^8 ? $3 \cdot 3^7$

19. 49 ? $7^2 \cdot 7^2$

20. $5^3 \cdot 5^4$? 25^2

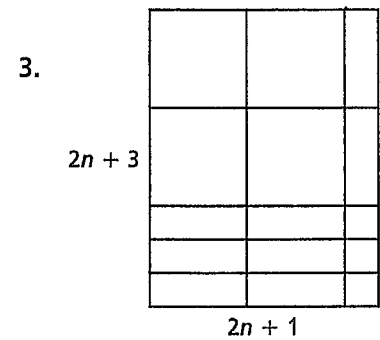
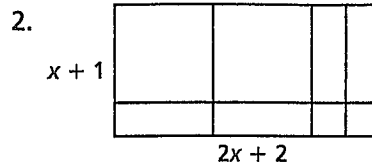
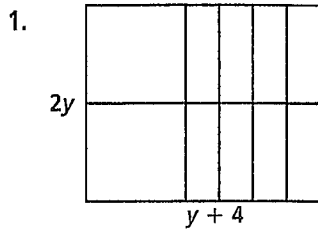
21. Double the number 4.6×10^{15} . Write the answer in scientific notation.

22. Triple the number 2.3×10^3 . Write the answer in scientific notation.

Practice 12-4

Multiplying Polynomials

Find the area of each figure.



Simplify each expression.

4. $x^2 \cdot x^2$

5. $7x \cdot 2x$

6. $(-3t)t$

7. $5m^2 \cdot 2m^2$

8. $(-x)(7x^2)$

9. $(3x^2)(-2x^3)$

Use the Distributive Property to simplify each expression.

10. $x(x + 2)$

11. $3b(b - 5)$

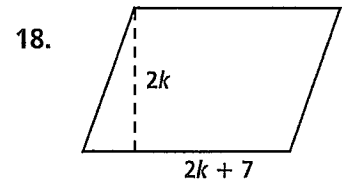
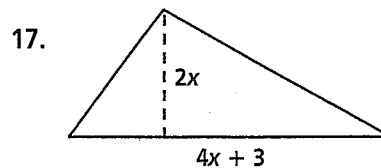
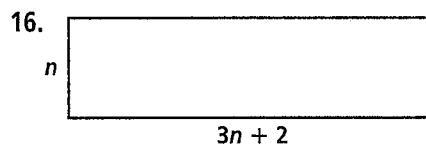
12. $2x^2(x + 9)$

13. $2(a^2 + 8a + 1)$

14. $2x^2(4x + 1)$

15. $3l(l^2 + 4l - 6)$

Find the area of each figure.



Simplify each expression.

19. $4x(-x^2 + 2x - 9)$

20. $-6x(-2x^2 - 3x + 1)$
