

Find each product.

1. $r(5r + r^2)$

2. $5y(-2y^2 - 7y)$

3. $-2b^2(3b^2 - 4b + 9)$

4. $-cd^2(3d + 2c^2d - 4c)$

5. $-5a^3b(2b + 5ab - b^2 + a^3)$

6. $-\frac{3}{4}hk^2(20k^2 + 5h - 8)$

Simplify.

7. $-x(4x^2 - 2x) - 5x^3$

8. $10(4m^3 - 3m + 2) - 2m(-3m^2 - 7m + 1)$

9. $5n(2n^3 + n^2 + 8) + n(4 - n)$

10. $4y(y^2 - 8y + 6) - 3(2y^3 - 5y^2 + 2)$

11. $4x^2(x + 2) + 3x(5x^2 + 2x - 6) - 5(3x^2 - 4x)$

Solve each equation.

12. $2(4x - 7) = 5(-2x - 9) - 5$

14. $7(8w - 3) + 13 = 2(6w + 7)$

13. $c(c + 3) - c(c - 4) = 9c - 16$

15. $y(y + 12) - 8y = 14 + y(y - 4)$

$$16. k(k - 7) + 10 = 2k + k(k + 6)$$

$$17. 3g(g - 4) - 2g(g - 7) = g(g + 6) - 28$$

Marta has \$6000 to invest. She puts x dollars of this money into a savings account that earns 3% interest per year, and with the rest, she buys a certificate of deposit that earns 6% per year.

18. Write an expression to represent the amount of money Marta puts into the certificate of deposit.

19. Write an equation for the total amount of money T Marta will have after one year.

20. If Marta put \$1500 into savings, how much money will she have at the end of one year?

Find each sum or difference.

$$21. (4x^2 + 5x) + (-7x^2 + x)$$

$$22. (5b - 7ab + 8a) - (5ab - 4a)$$

State whether each expression is a polynomial. If the expression is a polynomial, identify it as a *monomial*, a *binomial*, or a *trinomial*.

$$23. 4x^2 - 10ab + 6$$

$$25. \frac{7}{y} + y^2$$

$$24. 4c + ab - c$$

$$26. \frac{n^3}{3}$$

Simplify.

$$27. -5n(2n^2) - (-5n)(8n) + (-5n)(4)$$