

Determine whether the expression is a monomial.

1) x^{-9}

2) $8x^3y^5$

Write a monomial that represents the described quantity.

3) The number of seats in a theater that has r rows with exactly s seats in each row

Identify the degree and leading coefficient of the polynomial.

4) $f(x) = -14x^5 + 6x^4 - 5x^3$

Combine like terms, if possible.

5) $y^3 + 5y^4 + 7y^2 + y^4 - 7y^3$

Add.

6) $(-9x^9 - 4x^7 + 8x^4 - 3) + (8x^8 + 7x^4 - 9x) + (-3x^7 - 4x^4 - 9x + 7)$

Subtract.

7) $(6x^2 + 2x^4 - 9 - 9x^3) - (8 - 5x^3 + 8x^4 + 2x^2)$

Determine whether $f(x)$ represents a polynomial function.

8) $f(x) = 2x - 4x^{-1} + 19$

Subtract.

9) $(-2r^4 + 9r^3 - 3r) - (8r^4 - 9r^3 + 6r^2 - 2r)$

Determine whether $f(x)$ represents a polynomial function.

10) $f(x) = 2x^5 + 9x^2 - 4$

Evaluate $f(x)$ at the given value of x .

11) $f(x) = 2x^2 + 2x - 10$ for $x = -4$

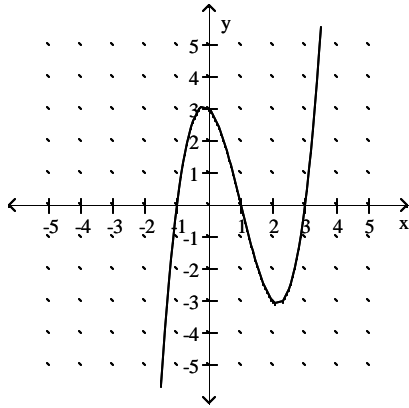
Use the graph of f to evaluate the expression.

12) a) $f(2) =$

b) $f(0) =$

c) Find x when $f(x) = -4$

d) solve $f(x) = 4$



Solve the problem.

13) The number of people running a local race has increased dramatically during the past years. The polynomial $5x^2 + 24x + 75$ models the number of people that run the race each year from 1990 to 2000, where 1990 corresponds to $x = 0$ and 2000 corresponds to $x = 10$. Use the polynomial to estimate the number of runners in 1995.

14) The polynomial function $I(t) = -0.1t^2 + 1.5t$ represents the yearly income (or loss) from a real estate investment, where t is time in years. After what year does income begin to decline? Graph using the calculator and use the CALCULATE menu to find the maximum; then, answer the problem.

Identify the coefficient and degree of the monomial.

15) $10a^2b^2$

Multiply the monomials.

16) $2x^3 \cdot 7x^6$

17) $-3x^7y^8 \cdot 10x^8$

Multiply.

18) $-2x(9 - 6x)$

19) $4x^3y(xy^2 + 7)$

Multiply the binomials.

20) $(x - 4y)(x - 11y)$

21) $\left(5x - \frac{1}{4}\right)\left(3x + \frac{1}{5}\right)$

Multiply the polynomials.

22) $(4x + 6y)(-4x + 4y + 1)$

Multiply the expressions.

23) $(3a + 8c)(3a - 8c)$

24) $(3m - 8w)(3m + 8w)$

25) $(3a - 4)^2$

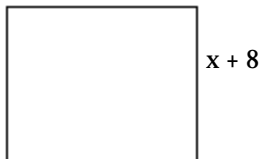
26) $(7x - 9y)^2$

Simplify the expression using the properties of exponents.

27) $(3x^7y^5)^2$

Express the area of the figure as a polynomial in descending powers of the variable x.

28) $x + 8$



Solve the problem.

29) Write a polynomial that represents the revenue received from selling $8y + 8$ items at a price of $x - 2$ dollars each.

Multiply the polynomials.

30) $(4x^2 - 10y)(-4x^2 + 6y + z)$

Multiply the binomials.

31) $(x + 1)(-5x - 6)$

Solve the problem.

32) Suppose that P dollars is invested in a savings account at an annual interest rate i , compounded monthly, for 2 months. The amount A in the account after 2 months is given by $A = P\left(1 + \frac{i}{12}\right)^2$.

Multiply this expression for A .

Answer Key

Testname: SECTIONS5.1-2

- 1) No
- 2) Yes
- 3) rs
- 4) Coefficient: -14; Degree: 5
- 5) $6y^4 - 6y^3 + 7y^2$
- 6) $-9x^9 + 8x^8 - 7x^7 + 11x^4 - 18x + 4$
- 7) $-6x^4 - 4x^3 + 4x^2 - 17$
- 8) No
- 9) $-10r^4 + 18r^3 - 6r^2 - r$
- 10) Yes
- 11) 14
- 12) a) $y = -3$, (b) $y = 3$, (c) $x = -1.5$, (d) $x \sim 3.2$
- 13) 320
- 14) 7.5
- 15) Coefficient: 10; Degree: 4
- 16) $14x^9$
- 17) $-30x^{15}y^8$
- 18) $-18x + 12x^2$
- 19) $4x^4y^3 + 28x^3y$
- 20) $x^2 - 15xy + 44y^2$
- 21) $15x^2 + \frac{1}{4}x - \frac{1}{20}$
- 22) $-16x^2 - 8xy + 4x + 24y^2 + 6y$
- 23) $9a^2 - 64c^2$
- 24) $9m^2 - 64w^2$
- 25) $9a^2 - 24a + 16$
- 26) $49x^2 - 126xy + 81y^2$
- 27) $9x^{14}y^{10}$
- 28) $x^2 + 16x + 64$
- 29) $8xy + 8x - 16y - 16$
- 30) $-16x^4 + 64x^2y + 4x^2z - 60y^2 - 10yz$
- 31) $-5x^2 - 11x - 6$
- 32) $A = \frac{P}{144}i^2 + \frac{P}{6}i + P$