

Mid-Chapter Quiz

Lessons 8-1 through 8-4

Determine whether each expression is a polynomial. If it is a polynomial, find the degree and determine whether it is a *monomial*, *binomial*, or *trinomial*. (Lesson 8-1)

- $3y^2 - 2$
- $4t^5 + 3t^2 + t$
- $\frac{3x}{5y}$
- ax^{-3}
- $3b^2$
- $2x^{-3} - 4x + 1$

7. **POPULATION** The table shows the population density for Nevada for various years. (Lesson 8-1)

Year	Years Since 1930	People/Square Mile
1930	0	0.8
1960	30	2.6
1980	50	7.3
1990	60	10.9
2000	70	18.2

- The population density d of Nevada from 1930 to 2000 can be modeled by $d = 0.005n^2 - 0.127n + 1$, where n represents the number of years since 1930. Identify the type of polynomial for $0.005n^2 - 0.127n + 1$.
- What is the degree of the polynomial?
- Predict the population density of Nevada for 2020 and for 2030. Explain your method.

Find each sum or difference. (Lesson 8-1)

- $(y^2 + 2y + 3) + (y^2 + 3y - 1)$
- $(3n^3 - 2n + 7) - (n^2 - 2n + 8)$
- $(5d + d^2) - (4 - 4d^2)$
- $(x + 4) + (3x + 2x^2 - 7)$
- $(3a - 3b + 2) - (4a + 5b)$
- $(8x - y^2 + 3) + (9 - 3x + 2y^2)$

Find each product. (Lesson 8-2)

- $6y(y^2 + 3y + 1)$
- $3n(n^2 - 5n + 2)$
- $d^2(-4 - 3d + 2d^2)$
- $-2xy(3x^2 + 2xy - 4y^2)$
- $ab^2(12a + 5b - ab)$
- $x^2y^4(3xy^2 - x + 2y^2)$

20. **MULTIPLE CHOICE** Simplify $x(4x + 5) + 3(2x^2 - 4x + 1)$. (Lesson 8-2)

- A $10x^2 + 17x + 3$ C $2x^2 - 7x + 3$
 B $10x^2 - 7x + 3$ D $2x^2 + 17x + 3$

Find each product. (Lesson 8-3)

- $(x + 2)(x + 5)$
- $(3b - 2)(b - 4)$
- $(n - 5)(n + 3)$
- $(4c - 2)(c + 2)$
- $(k - 1)(k - 3k^2)$
- $(8d - 3)(2d^2 + d + 1)$

27. **MANUFACTURING** A company is designing a box for dry pasta in the shape of a rectangular prism. The length is 2 inches more than twice the width, and the height is 3 inches more than the length. Write an expression for the volume of the box. (Lesson 8-3)

Find each product. (Lesson 8-4)

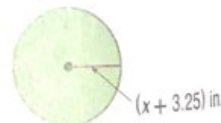
- $(x + 2)^2$
- $(n - 11)^2$
- $(4b - 2)^2$
- $(6c + 3)^2$
- $(5d - 3)(5d + 3)$
- $(9k + 1)(9k - 1)$

34. **DISC GOLF** The discs approved for use in disc golf vary in size. (Lesson 8-4)

Smallest disc



Largest disc



- Write two different expressions for the area of the largest disc.
- If x is 10.5, what are the areas of the smallest and largest discs?