

Algebra: Classifying Polynomials

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DIRECTIONS

Classify each polynomial by its degree (constant, linear, quadratic, cubic, quartic, quintic) and by number of terms (monomial, binomial, trinomial, or polynomial).

1. Classify by degree and number of terms:

$$4x^3 - 2x + 1$$

Answer: _____

2. Classify by degree and number of terms:

$$7x^2$$

Answer: _____

3. Classify by degree and number of terms:

$$5x^4 + 3x^2 - x + 2$$

Answer: _____

4. Classify by degree and number of terms:

$$-9$$

Answer: _____

5. Classify by degree and number of terms:

$$3x - 8$$

Answer: _____

6. Classify by degree and number of terms:

$$x^2 + 2x - 15$$

Answer: _____

7. Classify by degree and number of terms:

$$6x^5$$

Answer: _____

8. Classify by degree and number of terms:

$$2x^3 - x^2 + 4x - 7$$

Answer: _____

9. Classify by degree and number of terms:

$$-x + 12$$

Answer: _____

10. Classify by degree and number of terms:

$$8x^3 - 5x$$

Answer: _____

Answer Key & Solutions

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TEACHER NOTES

Degree = highest exponent. Terms: 1 = monomial, 2 = binomial, 3 = trinomial, 4+ = polynomial.
Degree names: 0 constant, 1 linear, 2 quadratic, 3 cubic, 4 quartic, 5 quintic.

1. Classify by degree and number of terms: $4x^3 - 2x + 1$

Answer: Degree 3 (cubic); Trinomial

Highest exponent = 3 → cubic. Three terms → trinomial.

2. Classify by degree and number of terms: $7x^2$

Answer: Degree 2 (quadratic); Monomial

Highest exponent = 2 → quadratic. One term → monomial.

3. Classify by degree and number of terms: $5x^4 + 3x^2 - x + 2$

Answer: Degree 4 (quartic); Polynomial (4 terms)

Highest exponent = 4 → quartic. Four terms → polynomial.

4. Classify by degree and number of terms: -9

Answer: Degree 0 (constant); Monomial

No variable — degree 0 (constant). One term → monomial.

5. Classify by degree and number of terms: $3x - 8$

Answer: Degree 1 (linear); Binomial

Highest exponent = 1 → linear. Two terms → binomial.

6. Classify by degree and number of terms: $x^2 + 2x - 15$

Answer: Degree 2 (quadratic); Trinomial

Highest exponent = 2 → quadratic. Three terms → trinomial.

7. Classify by degree and number of terms: $6x^5$

Answer: Degree 5 (quintic); Monomial

Highest exponent = 5 → quintic. One term → monomial.

8. Classify by degree and number of terms: $2x^3 - x^2 + 4x - 7$

Answer: Degree 3 (cubic); Polynomial (4 terms)

Highest exponent = 3 → cubic. Four terms → polynomial.

9. Classify by degree and number of terms: $-x + 12$

Answer: Degree 1 (linear); Binomial

Highest exponent = 1 → linear. Two terms → binomial.

10. Classify by degree and number of terms: $8x^3 - 5x$

Answer: Degree 3 (cubic); Binomial

Highest exponent = 3 → cubic. Two terms → binomial.