1. Which of the following is a polynomial in one variable?

   A. $x + 1/x$ B. $x^2 + 3x + 2$

   C. $3 + (1/2)x$ D. $3x + \sqrt{x}$ (B)

Explanation : A polynomial must have only non-negative integer exponents. Option B satisfies this condition.

2. What is the degree of the polynomial $4x^3 - 5x^2 + 6x - 9$?

   A. 2 B. 3

   C. 4 D. 1 (B)

Explanation : The highest power of the variable x is 3, so the degree is 3.

3. Which of the following is a binomial?

   A. $2x + 3x^2 + 4$ B. x

   C. $x^2 - 5$ D. $3x^2 + 4x + 5$ (C)

Explanation : A binomial has exactly two terms. $x^2 - 5$ has two terms.

4. What is the zero of the polynomial $p(x) = 2x + 6$?

   A. -2 B. 3

   C. -3 D. -6 (C)

Explanation : Set $2x + 6 = 0 \Rightarrow x = -3$

5. A zero of a polynomial is a value where:

   A. Polynomial becomes undefined

   B. Polynomial becomes positive

   C. Polynomial becomes zero

   D. Degree increases (C)

Explanation : A zero of a polynomial is a number for which the value of the polynomial is zero.

6. Which identity is used to expand $(x + y)^3$?

   A. $x^3 + y^3 + 3xy(x + y)$ B. $x^2 + y^2$

   C. $x^3 - y^3$ D. $x^2 - y^2$ (A)

Explanation : This is the identity for cube of sum of two terms.

7. What is the zero of the polynomial $p(x) = x^2 - 9$?

   A. 3 only B. ±3

   C. −3 only D. 0 (B)

Explanation : $x^2 - 9 = 0 \Rightarrow x = \pm 3$

8. Which of the following expressions is not a polynomial?

   A. $x + 1$ B. $x^2 + 3x$

   C. $x + 1/x$ D. $4x^2 - x + 2$ (C)

Explanation : $1/x = x^{-1}$ has a negative exponent, which is not allowed in a polynomial.

9. A polynomial of the form $ax^2 + bx + c$ where $a \neq 0$ is called :

   A. Linear B. Cubic

   C. Quadratic D. Binomial (C)

Explanation : A polynomial with degree 2 is called quadratic.

10. What is the degree of the zero polynomial?

    A. 0 B. 1

    C. Not defined D. Infinity (C)

Explanation : The degree of the zero polynomial is not defined.