Assignment 5

Recall that the degree of a polynomial is the highest degree of its monomials. For example, the degree of the polynomial $2x^3 + 4x^2 + 6x + 10$ is 3, and the degree of the polynomial $3x^5 + 2x^4 + 7x^2 + 12$ is 5.

The degree of a monomial $ax^n$ is $n$.

Use this information to answer the following questions.

1. Which of the following polynomials are monomials?
   a. $3x^2 + 4x + 5$
   b. $5x^3$
   c. $2x^4 + 3x^2 + 1$
   d. $7x^2$

2. Which of the following polynomials are binomials?
   a. $2x^2 + 3x - 1$
   b. $4x^3 + 5x^2$
   c. $3x^4 - 2x^3 + 1$  
   d. $6x^5 + 7x^4 - 8x^3 + 10$

3. Which of the following polynomials are trinomials?
   a. $x^3 + 2x^2 + 3x + 4$
   b. $x^4 - 5x^3 + 4x^2 + 1$
   c. $x^2 + 3x - 5$
   d. $2x^3 + 3x^2 - 4x + 1$

4. Which of the following polynomials have degree 3?
   a. $3x^3 + 2x^2 - 4x^3 + 5$
   b. $2x^3 + 3x^2 - 4x + 1$
   c. $x^3 + 2x^2 - 3x + 4$
   d. $4x^3 + 5x^2 - 6x + 7$

5. Which of the following polynomials have degree 5?
   a. $x^5 + 2x^4 - 3x^5 + 4x^3 + 5x^2 + 6x + 7$
   b. $2x^5 + 3x^4 - 4x^5 + 5x^3 - 6x^2 + 7x - 8$
   c. $x^5 + 2x^4 - 3x^3 + 4x^2 - 5x + 6$
   d. $3x^5 + 4x^4 - 5x^3 + 2x^2 - 3x + 1$

6. Which of the following polynomials have degree 4?
   a. $x^4 + 2x^3 - 3x^4 + 4x^2 - 5x + 6$
   b. $2x^4 + 3x^3 - 4x^4 + 5x^2 - 6x + 7$
   c. $x^4 + 2x^3 - 3x^2 + 4x - 5$
   d. $3x^4 + 4x^3 - 5x^2 + 2x - 3$

7. Which of the following polynomials have degree 0?
   a. $x^0 + 2x^1 - 3x^0 + 4x^2 - 5x^1 + 6$
   b. $2x^0 + 3x^-1 - 4x^0 + 5x^{-1} - 6x^0 + 7$
   c. $x^0 + 2x^1 - 3x^0 + 4x^2 - 5x^1 + 6$
   d. $3x^0 + 4x^1 - 5x^0 + 2x^1 - 3$

8. Which of the following polynomials have degree 1?
   a. $x^1 + 2x^0 - 3x^1 + 4x^2 - 5x^0 + 6$
   b. $2x^1 + 3x^-1 - 4x^1 + 5x^{-1} - 6x^1 + 7$
   c. $x^1 + 2x^0 - 3x^1 + 4x^2 - 5x^0 + 6$
   d. $3x^1 + 4x^0 - 5x^1 + 2x^0 - 3$

9. Which of the following polynomials have degree 2?
   a. $x^2 + 2x^1 - 3x^2 + 4x^0 - 5x^1 + 6$
   b. $2x^2 + 3x^-1 - 4x^2 + 5x^{-1} - 6x^2 + 7$
   c. $x^2 + 2x^1 - 3x^2 + 4x^0 - 5x^1 + 6$
   d. $3x^2 + 4x^0 - 5x^2 + 2x^0 - 3$

10. Which of the following polynomials have degree 10?
    a. $x^{10} + 2x^9 - 3x^{10} + 4x^8 - 5x^9 + 6$
    b. $2x^{10} + 3x^9 - 4x^{10} + 5x^8 - 6x^9 + 7$
    c. $x^{10} + 2x^9 - 3x^{10} + 4x^8 - 5x^9 + 6$
    d. $3x^{10} + 4x^9 - 5x^{10} + 2x^8 - 3$