Unit 5.2 Introduction to Polynomials and Addition and Subtraction

1. Identify each expression as a monomial or polynomial

   a. $3x^4$ _____

   b. $4xy^3$ _____

   c. $14a^7 - 2a - 6$ _____

   d. $7x + 3$ _____

   e. $4m^3 7y^2$ _____

   f. $\frac{1}{2}x^3 - \frac{2}{5}x$ _____

2. Simplify the polynomial by combining like terms. Write the polynomial in descending order and state the degree and the leading coefficient

   a. $6a^5 + 2a^2 - 7a^3 - 3a^2$

   b. $7x^3 + 3x^2 - 2x + x - 5x^3 + 1$

   c. $2x + 4x^2 + 6x + 9x^3$

3. Evaluate the given polynomials

   a. $p(x) = x^2 + 14x - 3$ for $p(-1)$

   b. $g(x) = 3x^3 - 9x^2 - 10x - 11$ for $g(3)$

   c. $q(a) = 2a^4 + 3a^2 - 8a$ for $q(-1)$

   d. $f(x) = 3x+5$ for $f(a+2)$

   e. $h(x) = 5x - 10$ for $h(2a+7)$

4. Simplify the following polynomials using addition and subtraction

   a. $(2x^2 - x - 1) + (x^2 + x + 1) =$ _____

   b. $(-4x^2 + 2x - 1) + (3x^2 - x + 2) + (x - 8) =$ _____

c. $(4x^2 + x - 1) + (6x - 5) - (3x^2 - 4x + 2) =$ _____

d. $(x^2 + 2x - 1) + (3x^2 - x + 2) + (2x^3 - 4x - 8) =$ _____

e. $(2x^2 - x - 10) - (-x^2 + 3x - 2) =$ _____

f. $(-3x^4 + 2x^3 - 7x^2 + 6x + 12) - (x^4 + 9x^3 + 4x^2 + x - 1) =$ _____

g. $(3x^4 - 2x^3 - 8x - 1) - (5x^3 - 3x^2 - 3x - 10) =$ _____

h. $5x + 2(x - 3) - (3x + 7) =$ _____

i. $(x^2 - 1) + 2[4 + (3 - x)] =$ _____

j. Subtract $3x^2 - 4x + 2$ from the sum of $4x^2 + x - 1$ and $6x - 5$