Name _____ Date _____

Practice 1.3: Equivalent Polynomials

1. Determine whether each expression is a polynomial. If it is, write the polynomial in standard form. If it isn't, explain why.

a. $2x - 3x^3 + 1$

b. $\frac{3x+4}{x}$

c. $4x^2 + 7x - \sqrt{x}$

d. $2x^2 - 5x + 3x^{-1}$

2. Find the degree and leading coefficient of each polynomial.

a. $2x^2 - 6x + 8$

b. 3

c. $x^5 - 1$

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

3. Perform the operation then write the resulting polynomial in standard form.

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

b. $-(5x^2 - 1) + (-3x^2 + 5)$

c. $(15x^4 - 18x - 19) - (13x^4 - 14x^2 - 17)$

d. $x^2(4x^2 + 2x - 3)$

e. $-4x(3 - x^2)$

f. $(1 - x^3)5x$

4. Find the product then write the resulting polynomial in standard form.

a. $(x - 5)(x + 10)$

b. $(7x - 2)(4x - 3)$

c. $(2x + 4)(3x + 1)$

d. $(x - 8)^2$

e. $(3x + 5)^2$

f. $(5 - 9x)^2$

g. $(x + 6)(x - 6)$

h. $(2x - 8)(2x + 8)$

i. $(4x - 5y)(4x + 5y)$

j. $(3x^2 - 7y^3)(3x^2 + 7y^3)$

k. $(x + 2)(x^2 + 3x - 4)$

l. $(x^2 + 4x + 1)(x - 3)$

m. $(x + 5)^3$

n. $(x^2 + 2x + 3)(x^2 - 4x + 1)$

5. a. Determine the degree of the sum of two polynomials of degrees m and n if $m < n$.

b. Determine the degree of the product of two polynomials of degrees m and n.