Section 4.2 Focus Exercises

1. For each term identify (i) its coefficient (ii) its variable cluster (iii) its degree.

Term	Coefficient	Variable Cluster	Degree of Term
$5xy^7$			
$-3x^4y^2$			
$\frac{5}{8}y^2$			
$-x^3$			
x^5y			
$-2w$			
9			

2. Given each polynomial, (i) write it descending order, (ii) identify the leading coefficient, and (iii) write the degree of the polynomial.

Polynomial	In Descending Order	Leading Coefficient	Degree of the Polynomial
$4x - 7x^3$			
$-3 + x^2 + 6x$			
$1 - 2x^3 + 5x - 8x^2$			
$2x^2 + 9 - x^3 - 4x$			
$-3x^4 + 9x^2 - 2x - x^6$			

3. Simplify each polynomial by combining like terms. If the polynomial cannot be simplified any further, then write it as it is. Be sure to write your answer in descending order.

a) $-2xy^2 + 6xy^2$

b) $x^5 - 8x^5$

c) $-y^3 - y^3$

d) $-p + p$

e) $4x^2 - 3x^2 + 5y^3 - 6y^3$

f) $3x - 4x^2 + 2x - 8x^2$

4. Distribute.

a) $3(4x^3 - 5x)$

b) $(4x^3 - 1)\cdot 6$

c) $-4(5x^2 - 2x + 6)$

d) $1(3y^4 - 2y^3)$

e) $-1(5x^2 - x + 3)$

f) $-(-x^4 - 2x^2 + 3)$

5. Add or subtract these polynomials, as indicated. Be sure to combine like terms, and write your answer in *descending order*.

a) $(5x^2 - 3x) + (x - 2x^2)$

b) $(-4x - 3) + (x^2 - 6x + 1)$

c) $(y - 4y^2 + 3) + (4 - y^2 + 6y)$

d) $(5x - 7) - (4 - 2x)$

e) $(9 + 2x - 4x^2) - (3x^2 + 11)$

f) $(9x + 6x^3 - 4) - (6 - 2x - 5x^3)$