Section 5.1 Extra Practice

1. For each expression
   i) identify the number of terms

   ii) identify the expression as a monomial, binomial, or trinomial

   a) $-2x^2$ i) _____   ii) _____
   b) $a + b^2 + s$ i) _____   ii) _____
   c) $y - 5$ i) _____   ii) _____
   d) $3d^2 - 5xy$ i) _____   ii) _____
   e) r i) _____   ii) _____
   f) $b^2 - 2b + 7$ i) _____   ii) _____

2. Identify each polynomial below as a monomial, binomial, or trinomial. If it is
   none of these, identify it as a polynomial.

   $c + d$ $3y$ $-7e^2 - 4f$ $a^2 - 3n - 6a - 5n^2$

   x^2 $m^2 - n - 8$ $a + 2b - 2c - 3d$ $4z^2 - y^2 - 6$

Monomials	Binomials	Trinomials	Polynomials
_____	_____	_____	_____
_____	_____	_____	_____

3. For each expression
   i) identify the number of terms
   ii) state whether the expression is a monomial, binomial, or trinomial

   a) $6t$ i) _____   ii) _____
   b) $x^2 + 3y - 2$ i) _____   ii) _____
   c) $9 - r$ i) _____   ii) _____
   d) $a - 2b + 4ab$ i) _____   ii) _____
   e) $-cd$ i) _____   ii) _____
   f) $5s^2 - st$ i) _____   ii) _____

4. State the degree for each of the polynomials in #3.
   a) _____   b) _____   c) _____

   d) _____   e) _____   f) _____

5. For each polynomial
   i) state the degree
   ii) state the number of terms

   a) $f + g + h$ i) _____   ii) _____
   b) $m^2 - mn + n^2$ i) _____   ii) _____
   c) $x - y$ i) _____   ii) _____
   d) s^2 i) _____   ii) _____
   e) 31   i) _____   ii) _____
   f) $5d^2 + dh - 11h^2 + 3$ i) _____   ii) _____

6. Write the expression represented by each set of algebra tiles.

■ = positive 1-tile   ☐ = negative 1-tile

▮ = positive x-tile   ▯ = negative x-tile

■ = positive x^2 ☐ = negative x^2

a) _____

b) _____

c) _____

d) _____

7. For the polynomial $3a^2 - 4ac - 8$ state the following.
   a) Number of terms _____   b) Coefficient of the first term _____
   c) Coefficient of the second term _____   d) Number of variables _____
   e) Degree of polynomial _____   f) Constant term _____

Section 5.2 Extra Practice

1. Determine
   i) the value of the coefficient
   ii) the number of variables for each term
   a) $-t$ i) _____ ii) _____   b) $4d^2$ i) _____ ii) _____
   c) 12 i) _____ ii) _____   d) $-8de$ i) _____ ii) _____
   e) b i) _____ ii) _____   f) $-c^2$ i) _____ ii) _____

2. Match the expression with its description by placing the correct letter in the blank.

   A $-4x$ _____ a constant

   B 17 _____ a binomial with two variables

   C $2ab$ _____ -1 is the coefficient

   D $3y^2 - 2y$ _____ -4 is the coefficient

   E $-m$ _____ a binomial with a degree of 2

   F $5x - 3y$ _____ a monomial with a degree of 2

3. Circle the like terms in each group.
   a) $4x, 4y, x^2, -x, y^2$ b) $6, 2x, -2.5, 3y, -0.1$
   c) $a, 4b, -3ab, 7a, 1.5a$ d) $-f, 3ef, f^2, -6f^2, 5e$
   e) $6st, -10s, \frac{3}{4}st, -st, t$ f) $pq, -0.6p^2, 5q, -p^2, 10p^2$
   g) $0.5jk, -jk, j^2, 6jk, -k$ h) $\frac{2}{5}, \frac{1}{2}r, 0.12, r^2, 9$

4. Collect like terms.
   a) $3m - m^2 - 6 + 3m^2$ b) $-4k - k^2 + 5k - 7k^2 + 8$

   _____   _____

   c) $-c - c^2 + 3c + c^2$ d) $7 - 10 + 5n - n + 9 + 8n$

   _____   _____

   e) $-2b^2 - 7b + 3b^2 - 8b + b$ f) $w^2 - 3w - 8w^2 + 7w^2 + 10w$

   _____   _____

   g) $-2a - 1 - a - 7 - 5a$ h) $3s + 6 - 6s^2 - 8 + 7s - 2s^2$

   _____   _____

5. A rectangle's length is 7 cm greater than its width, *w*.
   a) Draw the rectangle and label its dimensions.

   b) Write the expression to find its perimeter.

   c) Collect like terms.

6. The cost of publishing the school yearbook was $440. The yearbook committee priced the yearbook at $8.
   a) Write an expression that represents the profit, *p*, for the number of yearbooks sold, *n*.

   b) How many yearbooks need to be sold for the yearbook committee to break even?

Name: _____ Date: _____

Section 5.3 Extra Practice

1. Add the polynomials by collecting like terms. Then, simplify.
  a) $(3x^2 - 2x) + (x^2 + x)$
  b) $(4n^2 - 2n - 4) + (-n^2 + 5n)$
  c) $(7r - 8) + (3r^2 - 11)$
  d) $(2b^2 - 8b) + (-2b^2 + 11b)$
  e) $(7t^2 - 6t + 9) + (-2t^2 + 6t - 5)$
  f) $(-14k - 10) + (8k - 23)$

2. Determine the opposite of the expression represented by each diagram. Express the answer in diagrams and symbols.

  ■ = positive 1-tile   ☐ = negative 1-tile

  ▬ = positive x-tile   ▭ = negative x-tile

  ■ = positive x^2 ☐ = negative x^2

  a)

  b)

3. Determine the opposite of each expression.
  a) $6a$
  b) $-3c^2 - 9$
  c) $d^2 - 8d + 2$
  d) $6w^2 + 4w - 0.8$

4. Subtract the polynomials by adding the opposite terms, collecting like terms, and then simplifying.
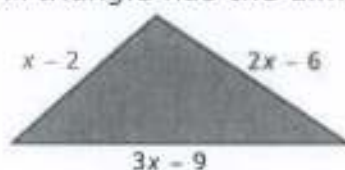 **a)** $(5a - 4) - (3a - 2)$
  b) $(7 - 6r) - (3 + r)$
  c) $(6y^2 - 2y) - (-y^2 - 3y)$
  d) $(8 - 5t) - (-9 - 4t)$
  e) $(h - 1) - (3h^2 + 7)$
  f) $(4k^2 - 6k + 1) - (-2k^2 + 5)$

5. A triangle has the dimensions shown.

  $x - 2$ $2x - 6$

  $3x - 9$

  a) Write the unsimplified expression for the perimeter of the triangle.
  b) If $x = 6$, what is the perimeter? Show your work.
  c) Simplify the expression in part a) for the perimeter of the triangle. Show your work.
  d) Use the simplified expression to verify the perimeter when $x = 6$. Show your work.