5.2 Equivalent Expressions

MathLinks 9, **pages 183–189**

Key Ideas Review

1. Complete the following statements.

a) In the monomial $6ab$, the variables are _____ and _____.

b) In the monomial $-7wx^2$, the coefficient is _____. The variables are w and x.

The exponent for w is _____ and the exponent of x is _____.

c) For the monomial 18, is there a coefficient or variable?   YES   NO

2. In the three *like* terms below, circle what is *alike* among them. Then, combine the terms.

$3x^2$ $-4x^2$ $-x^2$ Combined term: _____

3. Are the terms below like terms?   YES   NO   Explain.

$5x$ $5x^2$ $5y$

Check Your Understanding

4. For each of the following, state the value of the coefficient. Then, state the number of variables for each term.

a) y

b) $-3b^2$

c) $6st$

d) -15

e) $-dh$

f) bc

5. Use the following monomial expressions to answer the questions below.

$-cd$ $9r$ $4x$ k^2 $-xy$ $-3jk$

a) Which have a coefficient of -1?

b) Which have two variables?

c) Which have a coefficient of 1?

d) Which have only one variable, with an exponent of 1?

6. Circle the like terms in each group.

a) $14 \quad 3r \quad -r^2 \quad -r \quad 3s$

b) $-4y \quad 8xy \quad 2x \quad 0.3y \quad \dfrac{y}{2}$

c) $12c \quad cd \quad 1.2d \quad 6cd \quad cd^2$

7. Rearrange the polynomial by grouping like terms.

a) $9 - 5c - 8 + 5c^2 + c - c^2$

b) $8m - 9 + 2m^2 + 6 + 3m^2 - 6m$

c) $-5d^2 + 3d - 2 + 6d^2 - 8d + 7$

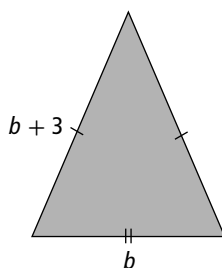**8.** Rearrange each polynomial by grouping like terms. Then, simplify by adding or subtracting.

a) $-b^2 + 6 + 5b^2 - 8 + 9$

b) $7t + 14 + 6t - 5 - 3t^2 + 4t^2$

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

d) $3y^2 + 4 - 6y^2 - 6 + 3y - 5 + 2y$

9. Write and simplify an expression for the perimeter of the triangle by combining like terms.

10. a) Draw a figure with a perimeter that is represented by
$(s) + (2s) + (s + 5) + (3s)$,
where each value in parentheses represents the length of one side. Label each side length. Explain why you made each side the length that you did.

b) Simplify the expression for the perimeter by combining like terms.

11. A mechanic charges $70 an hour plus the cost of parts to repair a vehicle. The parts cost $215 for the repair on Tamara's car.

a) Write an expression for the total cost, C, of repairing Tamara's car for any number of hours, n.

b) Use the expression you created in part a) to calculate the cost of repairs that take $3\frac{1}{2}$ h.