Name _____ Class _____ Date _____

Practice 7-3

Adding Algebraic Expressions

1. Identify the number of terms in the expression $9m + 7$.

2. a) Identify all the coefficients of the expression $2 + 6a$.

   b) Identify all the constants of the expression $2 + 6a$.

3. Add $(2a + 8) + (4b + 5)$. Simplify your answer.

4. Add $(8x - 7) + (6x + 8)$. Simplify your answer.

5. Frank is going to plant b vegetable seeds in one garden and $5b + 10$ vegetable seeds in another. How many seeds is Frank going to plant?

6. Nancy and Bill collect coins. Nancy has x coins. Bill has 5 coins fewer than five times the number of coins Nancy has. Write and simplify an expression for the total number of coins Nancy and Bill have. Simplify your answer.

7. **Error Analysis** On a math test a student, Sarah, has to identify all the coefficients and constants of the expression $4 + n + 7m$. Sarah says that 7 is a coefficient and 4 is a constant.

   a) Identify all the coefficients of the expression.

   b) Identify all the constants of the expression.

   c) What error might Sarah have made?

   - O A. Sarah did not include the constant 1.
   - O B. Sarah said 4 is a constant. It is actually a coefficient.
   - O C. Sarah said 7 is a coefficient. It is actually a constant.
   - O D. Sarah did not include the coefficient 1.

8. **a) Writing** Combine the like terms of the expression $(8 + 6x) + (-4 + 9c)$.

   b) Explain how you simplified the expression in each step.

9. **a) Reasoning** Find the sum $(8x + 2) + (-9x + 7)$.

   b) Explain how you know when to combine terms with variables.

10. **Estimation** Gabe goes to the mall. If k is the number of items he bought, the expression $14.74k + 24$ gives the amount he spent in dollars at one store. Then he spent 25 dollars at another store.

    a) Find the expression that represents the amount Gabe spent at the mall.

    b) Estimate how much Gabe spent if he bought 3 items.

Name _____ Class _____ Date _____

Practice 7-4

Subtracting Algebraic Expressions

1. Rewrite the expression $14m - (5 + 8m)$ without parentheses.

2. Rewrite the expression $13m - (-9m - 4)$ without parentheses.

3. **a)** Write an equivalent expression of $8m - (5 + 2m)$ without parentheses.

   b) Simplify the result.

4. Subtract $7x - (9 + 5x)$.

5. A company has two manufacturing plants with daily production levels of $5x + 11$ items and $2x - 3$ items, respectively. The first plant produces how many more items daily than the second plant?

6. Two communications companies offer calling plans. With Company X, it costs 35¢ to connect and then 5¢ for each minute. With Company Y, it costs 15¢ to connect and then 4¢ for each minute.

   a) Which of these expressions represents how much more Company X charges than Company Y?

   ○ A. $(35 + 4n) - (15 + 5n)$

   ○ B. $35n - 5 - 15n - 4$

   ○ C. $(35n - 4) - (15n - 5)$

   ○ D. $(35 + 5n) - (15 + 4n)$

   b) Write and simplify an expression that represents how much more Company X charges than Company Y, in cents, for n minutes.

7. **Error Analysis** Tim incorrectly rewrote the expression $\frac{1}{2}p - \left(\frac{1}{4}p + 4\right)$ as $\frac{1}{2}p + \frac{1}{4}p - 4$.

   a) Rewrite the expression without parentheses correctly.

   b) What was Tim's likely error?

   - O A. He did not change the sign of the first term in the parentheses.
   - O B. He did not change the sign of the expression outside the parentheses.
   - O C. He did not change the sign of the second term in the parentheses.
   - O D. He multiplied each expression in the parentheses by $\frac{1}{2}p$.

8. a) **Writing** Rewrite the expression $\frac{1}{4}p - \left(1 - \frac{1}{3}p\right)$ without parentheses.

   b) Use a different method to rewrite the expression without parentheses.

   c) After rewriting the expression, what do you notice about each term inside the parentheses?

9. a) **Multiple Representations** Simplify the expression $10x - (-7 + 6x)$.

   b) Draw algebra tiles to represent the subtraction.

10. **Reasoning** Each month, a shopkeeper spends $5x + 11$ dollars on rent and electricity.

    a) If he spends $2x - 3$ dollars on rent, how much does he spend on electricity?

    b) For which value(s) of x is the amount the shopkeeper spends on electricity less than $100? Explain how you found the value(s).