Name _____ Class _____ Date _____

Additional Practice

1. Use the basic rules of arithmetic and what you know about like terms. Decide which expressions equal the expression $3m - 5n$. If an expression does not equal $3m - 5n$, explain why it does not.

a. $3(m - n) - 4n$ **b.** $(3m)(-5n)$ **c.** $(2m - 7n) + (m + 2n)$

2. The lengths and widths of three rectangles are given below. For each rectangle, find an expression for the area and an expression for the perimeter.

a. length: $12x - 7$ width: 5
b. length: 13   width: $-3x - 4$
c. length: $5 + 7x$ width: 8

3. Evaluate the expression $5(2x - 7) - 3(3x - 10) + 4$ for each x value.

a. 4   **b.** -5 **c.** $\frac{1}{10}$ **d.** 0

e. Simplify the expression.

4. Evaluate the expression $\frac{n(n + 1)}{2}$ for each n value.

a. 7   **b.** 8   **c.** 9   **d.** 10

e. Explain why $\frac{n(n + 1)}{2}$ is always a whole number if n is a whole number.

5. The binary operation $\odot$ is defined by the rule $a \odot b = \frac{2ab}{a + b}$.

a. Explain how to find $5 \odot 3 = 3.75$.
b. Evaluate $10 \odot 3$.
c. Is $\odot$ commutative? That is, does $\odot$ have the any-order property?

6. Simplify.

a. $3(y + 5) + 4(y + 5)$ **b.** $3(y + 5) + 4(y + 5) - 6(y + 5)$
c. Evaluate each simplified expression for $y = -5$. What is the pattern in your results? Explain.

7. Here is one of Maya the Magnificent's number tricks.
• Choose a number.
• Subtract 6.
• Multiply by 5.
• Add 100.
• Multiply by 2.
• Subtract 20.
• Divide by 10.

Maya says, "I can get your starting number from your ending number in one step!"
a. Let the starting number equal m. Write the result after each step. Simplify each expression after each step.
b. Explain how Maya can get the starting number from any ending number in one step.