

## Equations and Expressions Memory Check

NAME: \_\_\_\_\_ Per: \_\_\_\_\_

*Answer the following questions in detail:*

1. Solve  $9n - 2 = 43$ .

2. Solve  $8x - 4 = 52$ .

3. Manuel just bought a new television for \$629.00. He made a down payment of \$57.00 and will pay monthly payments of \$26.00 until it is paid off. How many months will Manuel be paying? (Assume that Manuel pays no interest.)

4. Sally bought 4 boxes of pens for \$6 each and 7 packages of paper for \$7 each. Simplify  $4 \cdot 6 + 7 \cdot 7$  to find the amount Sally spent on pens and paper.

5. Simplify the expression:  $4 - 3(2 + 5v) + 7$

6. Simplify the expression:  $46 - 12 \div 4 \times 3 + 20$ .

7. Identify the mistake that was made in simplifying the expression. Then correctly simplify the expression.

$$\begin{aligned} 3(x - 6) + (4x + 12) - 6x &= \\ 3x - 9 + 4x + 12 - 6x &= \\ (3x + 4x - 6x) + (-9 + 12) &= \\ x + 3 & \end{aligned}$$

8. Insert a set of parentheses in the expression below so that it is equivalent to the expression  $3y + 10$ .

$$4y - 3x - y + 2x - 8 + 5x + 2$$

9. Write an expression with two operations that simplifies to 1.

10. The daytime thermometer reading of  $72^{\circ}\text{F}$  is  $13^{\circ}\text{F}$  lower than the daytime temperature required for the opening of Samantha's neighborhood outdoor pool. Does the pool open when the temperature is  $59^{\circ}\text{F}$  or  $85^{\circ}\text{F}$ ? Use substitution of both numbers in an equation to prove the answer.

11. If you triple the number of times Elizabeth has cooked dinner for her family and then add 4, you get the number of times her sister Joy has cooked the family's dinner. If Joy has cooked the family's dinner 25 times, how many times has Elizabeth cooked dinner?

12. Luis is running around a track for a charity fundraiser. He completes some laps, and then he is joined by his friend Janine. They continue to run together at the same constant rate for several more laps.

**Part A:** When Luis completes 3 laps, Janine completes 5 laps. How many laps does Janine complete when Luis completes 6 laps? Explain.

**Part B:** Janine's friends and family have agreed to donate \$8 for every lap she runs. Luis's friends and family will donate \$10 for every lap he runs.

To calculate the total donation for both Luis and Janine, Luis says they should use the expression  $18L - 16$ .

Janine says they should use  $18J + 20$ .

The event's treasurer plans to use  $10L + 8J$ .

Are all of these expressions correct? If not, explain the error(s). If all of them are correct, explain why, and tell why each person might prefer his or her own expression.