NAME _____

1. Matt and Casey are wrapping gifts. They bought *x* rolls of wrapping paper and *y* packages of ribbon. They spent a total of $11. The equation below describes the relationship between the number of rolls of wrapping paper and the number of packages of ribbon purchased.

$$2x + y = 11$$

The ordered pair (4, 3) is a solution of the equation. What does the solution (4, 3) represent?

- **A.** Matt and Casey purchased 3 rolls of wrapping paper and 4 packages of ribbon.
- **B.** Wrapping paper costs $4 per roll, and ribbon costs $3 per package.
- **C.** Matt and Casey purchased 4 rolls of wrapping paper and 3 packages of ribbon.
- **D.** A roll of wrapping paper costs $1 more than a package of ribbon.

2. Indicate which property is illustrated in Step 8.

$$\begin{aligned}
\text{Step 1:} \quad & 25 - 40x + 6x - 3 = 0 \\
\text{Step 2:} \quad & 25 + (-40x + 6x) - 3 = 0 \\
\text{Step 3:} \quad & 25 + (-40 + 6)x - 3 = 0 \\
\text{Step 4:} \quad & 25 + (-34x) - 3 = 0 \\
\text{Step 5:} \quad & (-34x + 25) - 3 = 0 \\
\text{Step 6:} \quad & -34x + (25 - 3) = 0 \\
\text{Step 7:} \quad & -34x + 22 = 0 \\
\text{Step 8:} \quad & -34x + 22 + (-22) = 0 + (-22) \\
\text{Step 9:} \quad & -34x = -22 \\
\text{Step 10:} \quad & -34x \cdot \left(-\tfrac{1}{34}\right) = -22 \cdot \left(-\tfrac{1}{34}\right) \\
\text{Step 11:} \quad & x = \tfrac{11}{17}
\end{aligned}$$

- **A.** inverse property of addition
- **B.** additive identity property
- **C.** commutative property
- **D.** inverse property of multiplication

3. A company has fixed operating costs of $1,959.00 per month with a production cost of $13.37 per unit. If each unit brings $31.67 in revenue, which of the following equations represents the profit for the month?

(Let *x* represent the number of units made per month and *y* represent the total profit for the month. Note: Profit is the money left after taking the costs out of the revenue.)

4. Kirk pays $150 per month toward his school loan. He has already paid $11,000. If the total loan amount is $12,950, and no interest is figured into the calculation, how many more months will it take him to finish paying the loan?

- **A.** 11
- **B.** 20
- **C.** 16
- **D.** 13

5. Indicate which property is illustrated in Step 10.

$$
\begin{aligned}
\text{Step 1:} \quad & 27 - 18x + 3x - 7 = 0 \\
\text{Step 2:} \quad & 27 + (-18x + 3x) - 7 = 0 \\
\text{Step 3:} \quad & 27 + (-18 + 3)x - 7 = 0 \\
\text{Step 4:} \quad & 27 + (-15x) - 7 = 0 \\
\text{Step 5:} \quad & (-15x + 27) - 7 = 0 \\
\text{Step 6:} \quad & -15x + (27 - 7) = 0 \\
\text{Step 7:} \quad & -15x + 20 = 0 \\
\text{Step 8:} \quad & -15x + 20 + (-20) = 0 + (-20) \\
\text{Step 9:} \quad & -15x = -20 \\
\text{Step 10:} \quad & -15x \cdot \left(-\tfrac{1}{15}\right) = -20 \cdot \left(-\tfrac{1}{15}\right) \\
\text{Step 11:} \quad & x = \tfrac{4}{3}
\end{aligned}
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- **A.** commutative property
- **B.** inverse property of multiplication
- **C.** multiplicative identity property
- **D.** inverse property of addition

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6. Marcus works as a salesman at a car dealership. He is paid a base salary of $1,101.53 each month, and he receives a commission of $102.63 for each vehicle he sells. If last month Marcus earned $5,514.62, how many cars did he sell last month?

- **A.** 107
- **B.** 86
- **C.** 26
- **D.** 43

7. Matt and Casey are wrapping gifts. They bought x rolls of wrapping paper and y packages of ribbon. They spent a total of $22. The equation below describes the relationship between the number of rolls of wrapping paper and the number of packages of ribbon purchased.

$$4x + 2y = 22$$

The ordered pair (2, 7) is a solution of the equation. What does the solution (2, 7) represent?

- **A.** A package of ribbon costs $5 more than a roll of wrapping paper.
- **B.** Matt and Casey purchased 2 rolls of wrapping paper and 7 packages of ribbon.
- **C.** Matt and Casey spent $2 on wrapping paper and $7 on ribbon.
- **D.** Wrapping paper costs $2 per roll, and ribbon costs $7 per package.

8. Meghan is completing her chemistry and geometry homework. Each chemistry assignment has x problems, and each geometry assignment has y problems. She must complete a total of 96 problems. The equation below describes the relationship between the number of chemistry problems and the number of geometry problems.

$$4x + 3y = 96$$

The ordered pair (9, 20) is a solution of the equation. What does the solution (9, 20) represent?

- **A.** Meghan must complete 9 chemistry assignments and 20 geometry assignments.
- **B.** Meghan spent 9 minutes on her chemistry homework and 20 minutes on her geometry homework.
- **C.** Meghan must complete 11 more geometry assignments than chemistry assignments.
- **D.** Each chemistry assignment contains 9 problems and each geometry assignment contains 20 problems.

9. Blade-Z manufactures roller blades. The production facility has fixed costs of $200 a day and total production costs of $5,200 per day at an output of 100 pair of skates per day. Which of the following equations represents the daily production cost for Blade-Z based on the number of skates manufactured?

(Let $C(x)$ represent the daily production cost and x represent the number of pairs of skates manufactured.)

10. Michelle and her 2 pets moved into a new apartment. The management charges a non-refundable deposit of $25 per pet. Her monthly rent is $950. Michelle has currently spent $4,800 on rent and pet deposits. Assuming she has not acquired any new pets, how many months has she lived in her new apartment?

- **A.** 6
- **B.** 5
- **C.** 4
- **D.** 7

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11. Erica went shopping for new clothes for school. She bought a pair of jeans for $69.11 and several shirts for $10.06 each. If x represents the number of shirts she bought, which of the following equations should be used to find y, the total cost of Erica's shopping trip?

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12. A local company employs a varying number of employees each year, based on its needs. The labor costs for the company include a fixed cost of $42,668.00 each year, and $26,011.00 for each person employed for the year. For the next year, the company projects that labor costs will total $2,357,647.00. How many people does the company intend to employ next year?

- **A.** 89
- **B.** 181
- **C.** 45
- **D.** 479

13. Lauren and Christy made a total of $28.20 selling cookies and lemonade. The equation below describes the relationship between the number of cookies sold, x, and the number of glasses of lemonade sold, y.

$$0.60x + 1.40y = 28.20$$

What do the coefficients 0.60 and 1.40 represent?

- **A.** Lauren and Christy made $1.40 selling cookies and $0.60 selling glasses of lemonade.
- **B.** Lauren and Christy sold 0.60 cookies and 1.40 glasses of lemonade.
- **C.** Lauren and Christy sold cookies for $0.60 each and glasses of lemonade for $1.40 each.
- **D.** Lauren and Christy made $2.00 per sale.

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14. Meghan is completing her chemistry and geometry homework. Each chemistry assignment has x problems, and each geometry assignment has y problems. She must complete a total of 77 problems. The equation below describes the relationship between the number of chemistry problems and the number of geometry problems.

$$4x + 3y = 77$$

The ordered pair (5, 19) is a solution of the equation. What does the solution (5, 19) represent?

- **A.** Meghan must complete 5 chemistry assignments and 19 geometry assignments.
- **B.** Meghan spent 5 minutes on her chemistry homework and 19 minutes on her geometry homework.
- **C.** Meghan must complete 14 more geometry assignments than chemistry assignments.
- **D.** Each chemistry assignment contains 5 problems and each geometry assignment contains 19 problems.

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15. Laura retired from her job recently, and she has saved about $441,238.00 over the course of her career. She plans to withdraw $1,779.00 each month to pay for living expenses. After a certain amount of time, the balance in Laura's account is $400,321.00. How many months have passed since Laura retired?

- **A.** 19
- **B.** 26
- **C.** 118
- **D.** 23

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16. Reid's Hardware discounts all riding lawnmowers 7% to customers paying in cash. If Trey paid $1,348.31 in cash for a riding lawnmower, which of the following equations can be used to determine the original price of the lawnmower?

(Let x represent the original price of the lawnmower and y represent the discounted price.)

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17. A rental car company charges a base fee of $53.67 plus $0.75 per mile driven. If x represents the number of miles driven, which of the following equations could be used to find y, the total cost of the bill?