Systems of Linear Equations – Word Problems

4-Step Method:

1. Define variables
2. Write the system of equations
3. Solve showing all steps
4. State your solution in sentence form

7. You and your friend go to a Mexican restaurant. You order 2 tacos and 2 enchiladas. Your friend orders 3 tacos and 1 enchilada. Your bill was $4.80. Your friend's bill was $4.00. What was the price of an enchilada?

1.

Define variables:

x: Price of a taco
y: Price of an enchilada

System of equations:

$$2x + 2y = 4.80$$
$$3x + y = 4$$

State your solution:

The price of an enchilada is $1.60

Solve the system showing all steps

$$y = 4 - 3x$$
$$2x + 2(4 - 3x) = 4.80$$
$$2x + 8 - 6x = 4.80$$
$$-4x + 8 = 4.80$$
$$ - 8 \quad -8$$
$$-4x = -3.2$$
$$\frac{-4x}{-4} = \frac{-3.2}{-4}$$
$$x = 0.80$$
$$y = 4 - 3(0.80)$$
$$y = 4 - 2.4 \quad y = 1.60$$
$$(0.80, 1.60)$$

8. For a community bake sale, you purchases 12 pounds of sugar and 15 pounds of flour. Your total cost was $9.30. The next day, you purchased 4 pounds of sugar and 10 pounds of flour. Your total cost the second day was $4.60. Find the cost of a pound of sugar and a pound of flour.

1.

Define variables:

S: Cost of a lb. of sugar

f: Cost of a lb. of flour.

System of equations:

$12x + 15y = 9.30$

$4x + 10y = 4.60$

State your solution: The cost of a lb. of sugar is $.40c. and the cost of a lb. of flour is $.30c.

$(0.40, 0.30)$

Solve the system showing all steps

$4x + 10y = 4.60) \times -3$

$-12x - 30y = -13.8$

$+ (12x + 15y = 9.30)$

$$\frac{-15y}{-15} = \frac{-4.50}{-15}$$

$y = 0.30$

$4x + 10(0.30) = 4.60$

$4x + 3 = 4.60$

$\quad\quad -3 \quad\quad -3$

$$\frac{4x}{4} = \frac{1.60}{4}$$

$x = 0.4$

9. A travel agency offers different getaways to New York. Plan A includes hotel accommodations for 3-nights and 2-pair of baseball tickets for $645. Plan B includes hotel accommodations for 5-nights and 4-pairs of baseball tickets for $1135. How much does a single hotel cost and how much does a single pair of baseball tickets cost?

1.

Define variables:

x: cost per night

y: cost per pair of tickets

Solve the system showing all steps

System of equations:

$$3x + 2y = 645$$
$$5x + 4y = 1135$$

State your solution:

10. Tickets for the theater are $5 for the balcony and $10 for the orchestra. If 600 tickets were sold and the total receipts were $4750, how many tickets of each type were sold?

1.

Define variables:

x: # of balcony tickets

y: # of orchestra tickets.

Solve the system showing all steps

System of equations:

$$x + y = 600$$
$$5x + 10y = 4750$$

State your solution:

11. You bought 5 pairs of socks for $19. The wool socks you bought cost $5 per pair. The cotton socks you bought cost $3 per pair. How many of each type of sock did you buy?

1.

Define variables:

X: # of wool socks

y: # of cotton socks.

Solve the system showing all steps

System of equations:

$$X + y = 5$$
$$5x + 3y = 19$$

State your solution:

12. A sporting good store sells right-handed and left-handed baseball gloves. In one month, 12 gloves were sold for a total revenue of $528. Right-handed gloves cost $48 and left-handed gloves cost $36. How many right-handed gloves were sold?

1.

Define variables:

X: # of right-handed gloves

y: # of left-handed gloves.

Solve the system showing all steps

System of equations:

$$X + y = 12$$
$$48x + 36y = 528$$

State your solution:

Essential Question   11/29/17

How can I solve systems of equation by elimination?

Standard: MGSE9-2.A.REI.5
Show and explain why the elimination method works to solve a system of two-variable equations.

Day 7 - Solving Systems of Equations Elimination.ppt

Attachments

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