

Algebra 1: 3.2 Word Problems
Standard Form of Linear Equations

Name _____ Period _____

DEFINE the variables and WRITE an expression to represent each situation. 5 minutes

1. A farmer's market sells apples for \$0.75 per pound and oranges for \$0.89 per pound. Write an expression to represent the total amount the farmer's market can earn selling apples and oranges.

"I Do"
 $a =$ pounds of apples sold

$o =$ pounds of oranges sold

$$0.75a + 0.89o$$

2. A photo printing website sells 8 x 10 prints for \$4.99 and 3 x 5 prints for \$1.99. Write an expression to represent the total amount the website can earn selling 8 x 10 and 3 x 5 prints.

"We Do"
 $x =$ # of 8 x 10 prints sold

$y =$ # of 3 x 5 prints sold

$$4.99x + 1.99y$$

3. A movie theater sells tickets for matinee showings for \$7.00 and evening showings for \$10.50. Write an expression that represents the total amount the theater can earn selling tickets.

"You Do"
 $m =$ # of matinee tickets sold

$e =$ # of evening tickets sold

$$7.00m + 10.50e$$

4. A bakery sells muffins for \$1.25 each and scones for \$1.75 each. Write an expression that represents the total amount the bakery can earn selling muffins and scones.

$m =$ # of muffins sold

$s =$ # of scones sold

$$1.25m + 1.75s$$

5. A florist sells daisies for \$8.99 a dozen and roses for \$15.99 a dozen. Write an expression that represents the total amount the florist can earn selling daisies and roses.

$d =$ dozens of daisies sold

$r =$ dozens of roses sold

$$8.99d + 15.99r$$

6. The hockey booster club is selling winter hats for \$12 each and sweatshirts for \$26 each. Write an expression that represents the total amount the booster club can earn selling hats and sweatshirts.

$h =$ # of winter hats sold

$s =$ # of sweatshirts sold

$$12h + 26s$$

DEFINE the variables and WRITE an equation to represent each situation. 5 minutes

7. A florist sells carnations for \$10.99 a dozen and lilies for \$12.99 a dozen. During a weekend sale, the florist's goal is to earn \$650. Write an equation that represents the total amount the florist would like to earn selling carnations and lilies during the weekend sale.

"I Do"

c = dozens of carnations sold
 L = dozens of lilies sold

$$10.99c + 12.99L = 650$$

8. A bakery sells bagels for \$0.85 each and muffins for \$1.10 each. The bakery hopes to earn \$400 each day from these sales. Write an equation that represents the total amount the bakery would like to earn selling bagels and muffins each day.

"We Do"

b = # of bagels sold
 m = # of muffins sold

$$0.85b + 1.10m = 400$$

9. A farmer's market sells oranges for \$0.79 per pound and peaches for \$1.05 per pound. The farmer's market hopes to earn \$325 each day from these sales. Write an equation to represent the total amount the farmer's market would like to earn selling oranges and peaches each day.

"You Do"

o = pounds of oranges sold
 p = pounds of peaches sold

$$0.79o + 1.05p = 325$$

10. The high school soccer booster club sells tickets to the varsity matches for \$4 for students and \$8 for adults. The booster club hopes to earn \$200 at each match. Write an equation to represent the total amount the booster club would like to earn from ticket sales at each match.

s = # of student tickets sold
 a = # of adult tickets sold

$$4s + 8a = 200$$

11. An electronics store sells DVDs for \$15.99 and Blu-ray discs for \$22.99. The store hopes to earn \$2000 each week from these sales. Write an equation to represent the total amount the store would like to earn each week.

d = # of DVDs sold
 b = # of blu-ray discs sold

$$15.99d + 22.99b = 2000$$

12. Ling is selling jewelry at a craft fair. She sells earrings for \$5 each and bracelets for \$7 each. She hopes to earn \$300 during the fair. Write an equation to represent the total amount Ling would like to earn during the fair.

$e = \#$ of earrings sold
 $b = \#$ of bracelets sold

$$5e + 7b = 300$$

The basketball booster club runs the concession stand during a weekend tournament. They sell hamburgers for \$2.50 each and hot dogs for \$1.50 each. They hope to earn \$900 during the tournament. The equation $2.50b + 1.50h = 900$ represents the total amount the booster club hopes to earn. Use this equation to determine each unknown value.

10 minutes

13. If the booster club sells 315 hamburgers during the tournament, how many hot dogs must they sell to reach their goal?

"I Do"

$$b = 315$$

$$2.50(315) + 1.50h = 900$$

$$787.50 + 1.50h = 900$$

$$\begin{array}{r} 787.50 \\ - 787.50 \\ \hline 1.50h = 112.50 \\ \hline 1.50 \quad 1.50 \\ \hline h = 75 \end{array}$$

The booster club must sell 75 hot dogs.

14. If the booster club sells 420 hot dogs during the tournament, how many hamburgers must they sell to reach their goal?

$$h = 420$$

$$2.50b + 1.50(420) = 900$$

$$2.50b + 630 = 900$$

$$\begin{array}{r} 2.50b \\ - 630 \\ \hline 2.50b = 270 \\ \hline 2.50 \quad 2.50 \\ \hline b = 108 \end{array}$$

The booster club must sell 108 hamburgers.

15. If the booster club sells 0 hot dogs during the tournament, how many hamburgers must they sell to reach their goal?

$$h = 0$$

$$2.50b + 1.50(0) = 900$$

$$2.50b + 0 = 900$$

$$\begin{array}{r} 2.50b \\ \hline 2.50 \quad 2.50 \\ \hline b = 360 \end{array}$$

The booster club must sell 360 hamburgers.

16. If the booster club sells 0 hamburgers during the tournament, how many hot dogs must they sell to reach their goal?

$$\begin{aligned}
 b=0 \quad 2.50(0) + 1.50h &= 900 \\
 0 + 1.50h &= 900 \\
 \underline{1.50h} &= \underline{900} \\
 1.50 & \quad 1.50 \\
 h &= 600
 \end{aligned}$$

The booster club must sell 600 hot dogs.

17. If the booster club sells 281 hamburgers during the tournament, how many hot dogs must they sell to reach their goal? Round your answer.

$$\begin{aligned}
 b=281 \quad 2.50(281) + 1.50h &= 900 \\
 702.80 + 1.50h &= 900 \\
 -702.80 & \quad -702.80 \\
 \hline
 1.50h &= 197.50 \\
 \underline{1.50} & \quad \underline{1.50}
 \end{aligned}$$

The booster club must sell 132 hot dogs.

$$h = 131.\bar{6} \approx 132$$

18. If the booster club sells 168 hot dogs during the tournament, how many hamburgers must they sell to reach their goal? Round your answer.

$$\begin{aligned}
 h=168 \quad 2.50b + 1.50(168) &= 900 \\
 2.50b + 252 &= 900 \\
 -252 & \quad -252 \\
 \hline
 2.50b &= 648 \\
 \underline{2.50} & \quad \underline{2.50}
 \end{aligned}$$

The booster club must sell 260 hamburgers.

$$b = 259.2 \approx 260$$