Name: KEY Hour: _____ Date: _____

NOTES: Word Problem Practice

Goals: #1 - I can use linear systems to solve real-life problems. 

Homework: Chapter 7 Take Home Quiz

Review:

A linear system, consists of two linear equations.

Notes:

We can write a linear system that models a real-life problem.

We will need to decide which solution method is most efficient to solve these real-life problems.

- Graphing
- Substitution
- Elimination

* How many
  ↳ # of
* How much — cost
  ↳ price of

Example #1: Set up a system of linear equations that models each real-life problem. DO NOT SOLVE.

1. In one week a music store sold 7 violins for a total of $1600. Two different types of violins were sold. One type cost $200 and the other type cost $300. How many of each type of violin did the store sell?

Variables: Let x represent # of type 1 violin. Let y represent # of type 2 violin

Equation #1: $x + y = 7$

+ # =

Equation #2: $200x + 300y = 1600$

$ · # $ · # $ · 7

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2. You and your friend go to a Mexican restaurant. You order 2 tacos and 2 enchiladas and your friend orders 3 tacos and 1 enchilada. Your bill was $4.80 and you friend's bill was $4.00. How much does a taco and an enchilada cost?

Variables: Let t represent price of taco. Let e represent price of enchilada.

Equation #1: $2t + 2e = 4.80$ (# · $ # · $ # · $)

Equation #2: $3t + 1e = 4.00$ (# · $ # · $ # · $)

Example #2: Set up a system of linear equations that models each real-life problem and SOLVE.

1. My friend and I went out for lunch. I ordered 3 slices of pizza and 5 breadsticks and spent $20.50. My friend ordered 6 slices of pizza and 1 breadstick and spent $23. How much does a slice of pizza and a breadstick cost?

Variables: Let p represent cost of pizza. Let b represent cost of breadstick

Equation #1: $3p + 5b = 20.50$ (# · $ # · $ # · $)

Equation #2: $6p + 1b = 23$ (# · $ # · $ # · $)

Solution Method: elimination

$3p + 5b = 20.50$

$-5(6p + 1b = 23)$

$-30p - 5b = -115$

$+ 3p + 5b = 20.50$

$-27p = -94.5$

$p =$ \$3.50 → cost of pizza

$6p + 1b = 23$

$6(3.50) + 1b = 23$

$21 + 1b = 23$

$b =$ \$2.00 → cost of breadstick

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2. A business rents out men's suits for $50/day and men's shoes for $20/day. During one day, the business had a total of 37 rental items and collects $1490 for the rentals. Find the number of men's suits rented and men's shoes rented.

Variables: Let x represent # of men's suits. Let y represent # of men's shoes

Equation #1: $x + y = 37$
(# + # = #)

Equation #2: $50x + 20y = 1490$
($·# + $·# = $·37)

Solution Method: substitution

$x + y = 37$
$-x \quad -x$
$y = 37 - x$

$50x + 20(37 - x) = 1490$
$50x + 740 - 20x = 1490$
$30x + 740 = 1490$
$30x = 750$
$x =$ 25 men's suits

$y = 37 - x$
$y = 37 - 25$
$y =$ 12 men's shoes

You practice: Set up a system of linear equations that models each real-life problem. DO NOT SOLVE.

1. A business rents in-line skates for $15 and bicycles for $30. During one day, the business has a total of 25 rentals and collects $450 for the rentals. Find the number of pairs of skates rented and the number of bicycles rented.

Variables: Let s represent # of pairs of skates. Let b represent # of bicycles.

Equation #1: $s + b = 25$
(# # #)

Equation #2: $15s + 30b = 450$
($·# $·# $·#)