

Name: **KEY**

Section 4.2b - Solving Word Problems with Two Variables

Solve the following word problems by writing a system of equations and then solving the system.

You are running the concession stand at the Vic High basketball game. You are selling hot dogs and pop. Each hot dog costs \$1.50 and each pop costs \$0.50. At the end of the night you made a total of \$78.50. You sold a total of 87 hot dogs and pops combined. You must report the number of hot dogs sold and the number of pops sold. How many hot dogs were sold and how many pops were sold?

Let Hot Dogs be  $x$   
 pop be  $y$

$$x + y = 87 \rightarrow y = 87 - x$$

$$1.5x + 0.5y = 78.50$$

$$1.5x + 0.5(87 - x) = 78.50$$

$$1.5x + 43.5 - 0.5x = 78.50$$

$$x = 35$$

35 Hot Dogs and 52 pops

$$x + y = 87$$

$$y = 87 - 35$$

$$y = 52$$

You and a friend go to Taco Time for lunch. You order three soft tacos and three burritos and your total bill is \$11.25. Your friend's bill is \$10.00 for four soft tacos and two burritos. How much do soft tacos cost? How much do burritos cost?

soft tacos :  $x$   
 burritos :  $y$

$$\begin{aligned} (3x + 3y = 11.25)^{-4} \\ (4x + 2y = 10.00)^3 \end{aligned}$$

↓

$$\begin{array}{r} -12x - 12y = -45 \\ + \quad 12x + 6y = 30 \\ \hline \end{array}$$

$$-6y = -15$$

$$y = 2.50$$

$$3x + 3(2.5) = 11.25$$

$$3x + 7.5 = 11.25$$

$$3x = 3.75$$

$$x = 1.25$$

soft tacos: 1.25 burritos: 2.50