Name_____ Date_____

Unit 3 **Lesson 10**

DO NOW: The sum of Bianca's last two test scores was 177 and their difference was 13. What were her last two test scores?

Let x = 1st #

Let y = 2nd #

$$\begin{array}{r} x + y = 177 \\ + \; x - y = 13 \\ \hline 2x = 190 \end{array}$$

$$\frac{2x}{2} = \frac{190}{2}$$

$$\boxed{x = 95}$$

$$x + y = 177$$
$$95 + y = 177$$
$$-95 \quad -95$$
$$y = 82$$

AIM: Solving word problems involving systems of equations-Day 2

1. In your pocket you have a total of 17 nickels and dimes. How can we represent this as an equation?

Let x = # of nickles

Let y = # of dimes

$$x + y = 17$$

2. The total value of the coins is $1.45. How can we represent this as an equation?

$$.05x + .10y = 1.45$$

3. How many nickels and how many dimes do you have?

$$-.10(x + y = 17) \rightarrow -.10x - .10y = -1.7$$
$$.05x + .10y = 1.45$$

$$.05x + .10y = 1.45$$

$$\frac{-.05x}{-.05} = \frac{-.25}{-.05}$$

$$\boxed{x = 5}$$

$$x + y = 17$$
$$5 + y = 17$$
$$-5 \quad -5$$
$$y = 12$$

$$\boxed{\begin{array}{l} 5 \text{ nickles} \\ 12 \text{ dimes} \end{array}}$$

4. In your pocket, you have a total of 36 quarters and dimes. How can we represent this as an equation?

Let x = # quarters

Let y = # of dimes

$$x + y = 36$$

5. The total value of the coins is \$5.25. How can we represent this as an equation?

$$.25x + .10y = 5.25$$

6. How many quarters and how many dimes do you have?

$-.10(x + y = 36)$

$$-.10x - .10y = -3.6$$

$$.25x + .10y = 5.25$$

$$.15x = 1.65$$

$$\frac{.15x}{.15} = \frac{1.65}{.15}$$

$x = 11$

$x + y = 36$

$11 + y = 36$

$-11 \quad -11$

$y = 25$

11 Quarters

25 dimes

10. Tickets for a high school dance cost $10 each if purchased in advance of the dance, but $15 each if bought at the door. How can we represent this as an equation? Total amount $1200

Let x = # tixs sold in advanced

Let y = # tixs sold at the door

$$10x + 15y = 1200$$

11. If 100 tickets were sold and ~~$1,200 was collected~~. How can we represent this as an equation?

$$x + y = 100$$

12. How many tickets were sold in advance and how many were sold at the door?

$$10x + 15y = 1200$$
$$-10(x + y = 100)$$

$$10x + 15y = 1200$$
$$-10x - 10y = -1000$$

$$\frac{5y}{5} = \frac{200}{5}$$

$$y = 40$$

↓

$$x + y = 100$$
$$x + 40 = 100$$
$$-40 \quad -40$$
$$x = 60$$

60 tixs in advanced
40 tixs at the door

7. The tickets for a dance recital cost $5.00 for adults and $2.00 for children. How can we represent this as an equation?

Total amount of $ 1220

Let a = # of adult tixs

Let c = # of childern tixs

$5a + 2c = 1,200$

8. If the total number of tickets sold was 295 ~~and the total amount collected was $1,220~~. How can we represent this as an equation?

$a + c = 295$

9. How many adult tickets and how many children tickets were sold?

$5a+2c=1220$

$-2(a+c=295)$

$5a+2c=1220$

$-2a-2c=-590$

$3a=630$

$\frac{3a}{3}=\frac{630}{3}$

$a=210$

$a+c=295$

$210+c=295$

$-210 \quad -210$

$c=85$

210 adult tixs

85 childern tixs