6.4 Word Problems

Warm Up

$$4(2x - 2y = 6) = 8x - 8y = 24$$
$$-2(4x - 3y = 14) = -8x + 6y = -28$$

$$\frac{-2y}{-2} = \frac{-4}{-2}$$

$$2x - 2(2) = 6$$
$$2x - 4 = 6$$
$$+4 \quad +4$$
$$\frac{2x}{2} = \frac{10}{2}$$

$$y = 2$$
$$x = 5$$
$$(5, 2)$$

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We will use system of equations when you are comparing two things. For example, number of tickets sold and amount of money.

Ex.1

Movie tickets at a local theater cost $6 for adults and $2 for children under 12. If 175 tickets were sold with cash receipts of $750, how many of each kind of ticket were sold?

$$-6(a + c = 175) = -6a - 6c = -1050$$
$$6a + 2c = 750 = + 6a + 2c = 750$$

$$a + 75 = 175$$
$$-75 \quad -75$$
$$a = 100$$

$$\frac{-4c}{-4} = \frac{-300}{-4}$$
$$c = 75$$

Jan 18-10:52 AM

Ex.2

Adult tickets to a play cost $22. Tickets for children cost $15. Tickets for a group of 11 people cost $228. How many adults and children were in the group.

$$-22(a + c = 11) = -22a - 22c = -242$$
$$22a + 15c = 228 = 22a + 15c = 228$$

$$a + 2 = 11$$
$$-2 \quad -2$$
$$a = 9$$

$$\frac{-7c}{-7} = \frac{-14}{-7}$$
$$c = 2$$

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Ex.3

A large snack pack is $5 and a small snack pack is $3. In one day, the snack bar sold 60 snack packs for a total of $220. How many large and small snack packs did the snack bar sell?

$$-5(L + S = 60) = -5L - 5s = -300$$
$$5L + 3s = 220 = 5L + 3s = 220$$

$$L + 40 = 60$$
$$-40 \quad -40$$
$$L = 20$$

$$\frac{-2s}{-2} = \frac{-80}{-2}$$
$$S = 40$$

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Ex.4

The senior classes at Cane Bay and Stratford planned separate trips to New York City. Cane Bay filled 1 van and 6 buses with 372 students. Stratford High School filled 4 vans and 12 buses with 780 students. How many students can a bus and van carry?

$$-4(1v + 6b = 372) = -4v - 24b = -1488$$
$$4v + 12b = 780 = 4v + 12b = 780$$

$$1v + 6(59) = 372$$
$$1v + 354 = 372$$
$$-354 \quad -354$$
$$v = 18 \text{ students}$$

$$\frac{-12b}{-12} = \frac{-708}{-12}$$
$$b = 59 \text{ students}$$

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Ex.5

The difference of two numbers is 3. Their sum is 13. Find the numbers.

$$x - y = 3$$
$$+ \quad x + y = 13$$

$$\frac{2x}{2} = \frac{16}{2}$$
$$x = 8$$

$$8 + y = 13$$
$$-8 \quad -8$$
$$y = 5$$

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Classwork: **worksheet #1 - 5**

Final Five

Brenda's school is selling tickets to a spring musical. On the first day of ticket sales the school sold 3 adult tickets and 9 child tickets for $75. The school took in $67 on the second day by selling 8 adult tickets and 5 child tickets. What is the price of each adult and child ticket?

$$8(3a + 9c = 75)$$
$$-3(8a + 5c = 67)$$

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