Math 10P

Name_____

## Assignment: Solving Word Problems

Date_____

1) Norachai and Nicole each improved their yards by planting rose bushes and shrubs. They bought their supplies from the same store. Norachai spent $208 on 14 rose bushes and 8 shrubs. Nicole spent $128 on 7 rose bushes and 6 shrubs. Find the cost of one rose bush and the cost of one shrub.

Let x be rose bushes

Let y be shrubs

Norachai

$$14x + 8y = 208$$

Nicole

$$7x + 6y = 128$$

$$14x + 8y = 208$$
$$7x + 6y = 128$$

$$-2(7x + 6y = 128)$$

$$-14x - 12y = -256$$
$$+ \ 14x + 8y = 208$$

$$\frac{-4y}{-4} = \frac{-48}{-4}$$

$$y = 12$$

Find x

$$14x + 8y = 208$$
$$14x + 8(12) = 208$$
$$14x + 96 = 208 \quad -96$$
$$14x + 96 = 208 \quad -96$$

$$\frac{14x}{14} = \frac{112}{14}$$

$$x = 8$$

One rose bush is $8 and one shrub is $12.

3) Jimmy and Gabriella are selling cookie dough for a school fundraiser. Customers can buy packages of chocolate chip cookie dough and packages of double chocolate cookie dough. Jimmy sold 14 packages of chocolate chip cookie dough and 12 packages of double chocolate cookie dough for a total of $304. Gabriella sold 4 packages of chocolate chip cookie dough and 3 packages of double chocolate cookie dough for a total of $80. Find the cost each of one package of chocolate chip cookie dough and one package of double chocolate cookie dough.

Let x be choc. chip

Let y be double choc.

Jimmy: $14x + 12y = 304$

Gab: $4x + 3y = 80$

$$14x+12y=304$$

$$4x+3y=80$$

$$-4(4x+3y=80)$$

$$-16x-12y=-320$$

$$+\ \ 14x+12y=304$$

$$-2x=-16$$

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

$$x=8$$

Find y

$$14x+12y=304$$

$$14(8)+12y=304$$

$$112+12y=304 \quad -112$$

$$12y=192$$

$$\frac{12y}{12}=\frac{192}{12}$$

$$y=16$$

∴ One pack of choc. chip dough is $8 and one pack of double choc. dough is $16.

4) Bill and Jasmine are selling fruit for a school fundraiser. Customers can buy small boxes of oranges and large boxes of oranges. Bill sold 9 small boxes of oranges and 14 large boxes of oranges for a total of $397. Jasmine sold 1 small box of oranges and 7 large boxes of oranges for a total of $153. What is the cost each of one small box of oranges and one large box of oranges?

Let x be small boxes

Let y be large boxes.

Bill: $9x + 14y = 397$

Jas: $x + 7y = 153$

5) The senior classes at High School A and High School B planned separate trips to the county fair. The senior class at High School A rented and filled 2 vans and 1 bus with 59 students. High School B rented and filled 6 vans and 12 buses with 474 students. Each van and each bus carried the same number of

$$9x + 14y = 397$$
$$9x + 7y = 153$$

$$x + 7y = 153 \quad -7y$$

$$x = \boxed{153 - 7y}$$

$$9(153 - 7y) + 14y = 397$$
$$-1377 \quad 1377 - 63y + 14y = 397 \quad -1377$$
$$-49y = -980$$
$$\frac{-49y}{-49} = \frac{-980}{-49}$$
$$y = 20$$

$$x + 7y = 153$$

$$x + 7(20) = 153$$

$$x + 140 = 153 \quad {}^{-140}$$

$$x = 13$$

∴ one small box is $13 and
one large box is $20.

Answers to Word Problems

2)  $x = 7, y = 9$

5)  $x = 13, y = 33$