

S 4.3 #5 1, 6, 8, 12, 20, 23, 37, 38

→ Steps only.

11. Karen Karlin bought some large frames for \$15 each and some small frames for \$8 each at a closeout sale. If she bought 22 frames for \$239, find how many of each type she bought.

Let $x =$ the # of large frames
 $y =$ small ..

$$x + y = 22 \quad \begin{array}{l} \text{\# of frames} \\ \$ \end{array}$$

$$15x + 8y = 239 \quad \$$$

$$\left(\begin{array}{l} \text{\underline{15\$}} \\ \text{\underline{frame}} \end{array} \right) (x \text{ frames})$$

\$

14. Twice a first number plus a second number is 42, and the first number minus the second number is -6 . Find the numbers.

Let $x = \text{the 1st \#}$
 $y = \text{.. 2nd ..}$

Twice x plus y is 42
 $2x + y = 42$

x minus y is -6
 $x - y = -6$

x is three times bigger than y
 $x = 3y$

Not $3x = y$, which is instinctive.

19. A Piper airplane and a B737 aircraft cross each other (at different altitudes) traveling in opposite directions. The B737 travels 5 times the speed of the Piper. If, in 4 hours, they are 2160 miles apart, find the speed of each aircraft.

$$D = rt$$

Let $x =$ the speed of the Piper $\left(\frac{\text{miles}}{\text{hour}}\right)$
 $y =$ B737 ..

	Distance	Rate	Time
Piper	$4x$	x	4 hrs
B737	$4y$	y	4 hrs
TOTAL	2160		

$$y = 5x$$

$$4x + 4y = 2160$$

Substitution
Looks Good.

37. Rabbits in a lab are to be kept on a strict daily diet that includes 30 grams of protein, 16 grams of fat, and 24 grams of carbohydrates. The scientist has only three food mixes available with the following grams of nutrients per unit.

	<i>Protein</i>	<i>Fat</i>	<i>Carbohydrate</i>
Mix A	4	6	3
Mix B	6	1	2
Mix C	4	1	12

Find how many units of each mix are needed daily to meet each rabbit's dietary need.

S/4.3 Monday
S/4.5 Monday

Test. Tuesday

Due Day

Let $A =$ the # of units of Mix A
 $B =$ " " " " " B
 $C =$ " " " " " C

Sarah G.
 Protein
 Fat
 Carbs

$$4A + 6B + 4C = 30$$

$$6A + B + C = 16$$

$$3A + 2B + 12C = 24$$

Setup

Standard Student Mistake

$$4A + 6B + 3C = 30$$

units
MAKE

No SENSE

Want 60 liters of 3% mix.
 Use 4% & 1% to get it.
 How much of each mixture?
 Let x = the # of liters of 4% mix
 y = 1% ..

	Volume	Amt of pure
4%	x	$.04x$
1%	y	$.01y$
3%	60	$(.03)(60)$

$$.01\% = \frac{.01}{100} = .0001$$

$$x + y = 60$$

$$.04x + .01y = 1.8$$

TIMES
100

$$\rightarrow 4x + y = 180$$

