


36.  **AEROBICS CLASSES** A fitness club offers two water aerobics classes. There are currently 40 people regularly going to the morning class, and attendance is increasing at a rate of 2 people per month.



There are currently 22 people regularly going to the evening class, and attendance is increasing at a rate of 8 people per month. Predict when the number of people in each class will be the same. =

morning: $T = 40 + 2m$

evening: $T = 22 + 8m$

$$\begin{array}{r} 40 + 2m = 22 + 8m \\ -22 \quad -22 \\ \hline 18 + 2m = 8m \end{array}$$

$$\begin{array}{r} 18 + 2m = 8m \\ -2m \quad -2m \\ \hline 18 = 6m \end{array}$$

$$\begin{array}{r} 18 = 6m \\ \frac{18}{6} = \frac{6m}{6} \\ \hline 3 = m \end{array}$$

$m = 3$

3 months

Homework Questions?

Suppose the health food store wants to make 30 pounds of raisin granola that costs \$125. Granola costs them \$4 per pound and raisins cost them \$5 per pound. How many pounds of granola and raisins do they need?

$$\begin{array}{r}
 4G + 5R = 125 \\
 -4(G + R = 30) \rightarrow + \quad \begin{array}{r} 4G + 5R = 125 \\ -4G - 4R = -120 \\ \hline R = 5 \end{array} \\
 \hline
 G + R = 30 \\
 -5 \quad -5 \\
 \hline
 G = 25
 \end{array}$$

$4(25) + 5(5) = 125$
 $125 = 125 \checkmark$
25 lbs Granola
5 lbs Raisin

2. An owner of two stores buys five large delivery vans and five small delivery vans. One store receives three of the large delivery vans and two of the small delivery vans for a total cost of \$161,000. The other store receives the rest of the vans for a total cost of \$154,000. What is the cost of each type of van?

$$\begin{array}{r}
 \begin{array}{c} L \qquad \qquad S \\ 2(3L + 2S = 161000) \\ -3(2L + 3S = 154000) \end{array} \\
 \hline
 6L + 4S = 322000 \\
 + \quad -6L - 9S = -462000 \\
 \hline
 -5S = -140000 \\
 \hline
 S = 28000
 \end{array}$$

$3L + 2(28000) = 161000$
 $3L + 56000 = 161000$
 $-56000 \quad -56000$
 $3L = 105000$
 $\frac{3L}{3} = \frac{105000}{3}$
 $L = 35000$

Small is \$28,000
 Large is \$35,000

$2(35000) + 3(28000) = 154000$
 $154000 = 154000 \checkmark$

7.4 Applications of Linear Systems Cont.

Goals: • Use a system to model real-life problems.

EQ: How should you start word problems?

*Look for important info.

(numbers, come up with variables)

* per, each, every
multiply

SAME
=

7.4 Homework

#1-6 in Packet