

1.5 Solve Problems Using Linear Systems

Homework questions?

For today: In your groups choose one homework question and solve it using the method of your choice. Be ready to present your answer and **justify** why you chose that method.

Homework: p. 46 #1, 3, 4, 9

When you are done, complete the other three individually.

p. 448 # 5.

$$\frac{1}{x} + \frac{3}{y} = \frac{3}{4}$$

$$\frac{3}{x} - \frac{2}{y} = \frac{5}{12}$$

$$a + 3b = \frac{3}{4} \quad \times 4$$

$$3a - 2b = \frac{5}{12} \quad \times 12$$

$$4a + 12b = 3 \quad \times 2$$

$$36a - 24b = 5$$

$$+ \begin{array}{r} 8a + 24b = 6 \\ 36a - 24b = 5 \\ \hline 44a = 11 \end{array}$$

$$44a = 11$$

$$a = \frac{11}{44}$$

$$a = \frac{1}{4}$$

$$\text{sub } a = \frac{1}{4} \rightarrow \textcircled{1}$$

$$8\left(\frac{1}{4}\right) + 24b = 6$$

$$2 + 24b = 6$$

$$24b = 6 - 2$$

$$24b = 4$$

$$b = \frac{4}{24}$$

$$b = \frac{1}{6}$$

$$a = \frac{1}{x}$$

$$b = \frac{1}{y}$$

$$a = \frac{1}{x}$$

$$x = 4$$

$$b = \frac{1}{y}$$

$$y = 6$$

WORD
PROBLEMS

Comparison

Total

Wind or current → movement

Percent

Movement Questions



$$D = S \times T$$

	D	Speed	Time
Cal-Mon	3000	$p + w$	5
Mon-Cal	3000	$p - w$	6

Let w rep wind speed

Let p rep plane speed.

$$\textcircled{1} \quad 3000 = 5(p + w)$$

$$\textcircled{2} \quad 3000 = 6(p - w)$$

$$\textcircled{1} \quad 3000 = 5p + 5w \quad \times 6$$

$$\textcircled{2} \quad 3000 = 6p - 6w \quad \times 5$$

$$18000 = 30p + 30w$$

$$15000 = 30p - 30w \quad (+)$$

$$\hline 33000 = 60p$$

$$\frac{33000}{60} = p$$

$$550 = p$$

$$\text{sub} \rightarrow \textcircled{1}$$

$$3000 = 5p + 5w$$

$$3000 = 5(550) + 5w$$

$$3000 = 2750 + 5w$$

$$3000 - 2750 = 5w$$

$$250 = 5w \quad w = 50$$

$$\frac{250}{5} = w$$

\therefore The speed of the plane is 550 km/hr and the wind speed was 50 km/hr.

p. 46
#1, 3, 4, 9