

Modelling with Linear Equations

Feb 19/2010

Write a system of equations to model each of the following situations (do not solve):

1. The sum of two numbers is 72. Their difference is 48. ~~Find the numbers.~~

Let x and y represent the numbers

$$x + y = 72$$

$$x - y = 48 \quad \text{or} \quad y - x = 48$$

Feb 18-10:58 PM

2. Bert earns an hourly wage plus tips. One week he worked 12h and made a total of \$117. The next week he worked 10h and earned the same amount in tips as the week before, for a total of \$110. What is Bert's hourly wage?

We know: ① earned same tips each week

② worked 12h \rightarrow \$117

③ worked 10h \rightarrow \$110



Let t represent tips

Let w represent hourly wage

$$12w + t = 117$$

$$10w + t = 110$$

Feb 18-10:59 PM

3. Ernie drove at a speed of 50 km/h from Ancaster to Ottawa. From Ottawa to Kingston, he drove 80 km/h. If the whole trip was 550 km and it took 8h, what is the distance from Ottawa to Kingston?

Equations :

$$v = \frac{d}{t} \quad d = vt \quad t = \frac{d}{v}$$



Feb 18-11:01 PM

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	distance (d)	speed (v)	time (t)
trip 1	d_1	50 km/h	t_1
trip 2	d_2	80 km/h	t_2
total	550 km	 	8h

Feb 18-11:01 PM

	distance (d)	speed (v)	time (t)
trip 1	d_1	$= 50 \text{ km/h}$	t_1
trip 2	d_2	$= 80 \text{ km/h}$	t_2
total	550 km	 	8 h

$d_1 = 50t_1$ $d_2 = 80t_2$
 $d_1 + d_2 = 550$ $t_1 + t_2 = 8$
 $50t_1 + 80t_2 = 550$

Feb 18-11:01 PM

Find a partner and do p. 50 # 10, 13, 15, 17, 24.
DO NOT SOLVE!

Feb 18-11:05 PM

Assigned Work:

write a system of equations for each of the following, but DO NOT SOLVE:

p.51 #11, 14, 19, 21, 23, 28, 33.

using some of the ideas in the previous problems, do

p. 53 # 30 *

Feb 16 - 2:27 PM