Algebra II

pg 245

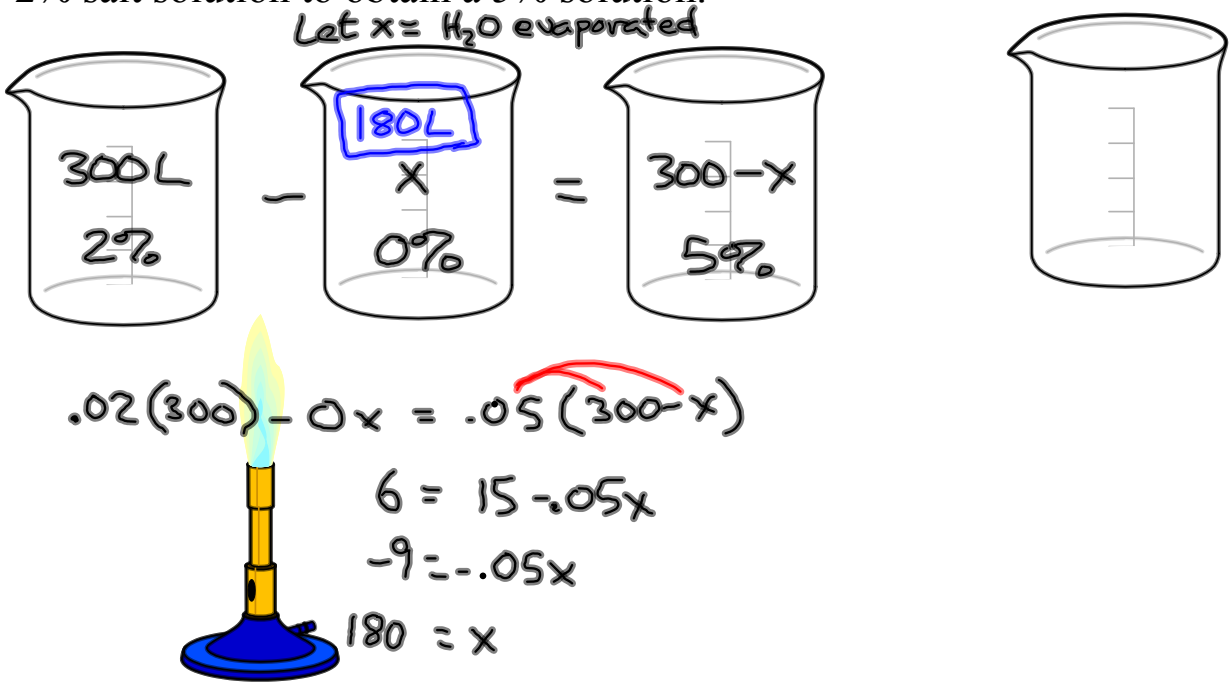
2)	42	12)	$9000 at 8%, $15,000 at 7.2%
4)	80	14)	600 mL
6)	8hrs 45min	16)	5:24 PM
8)	180L	18)	400 m
10)	10 km	20)	3L

2) 12 is $^{3}/_{5}$ of $^{10}/_{21}$ of the number

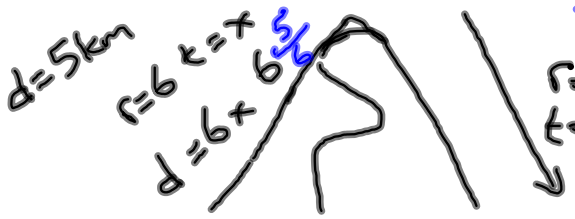
4) 75% of 60% of the number is 36.

6) An old converyor belt takes 21 h to move one day's coal output from the mine to a rail line. A new belt can do it in 15 h. How long does it take when both are used at the same time?

8) How much water must be evaproated from a 300 L tank of a 2% salt solution to obtain a 5% solution.



10) Pam jogged up a hill at 6 km/h and then jogged back down at 10 km/h. How many kilometers did she travel in all if her total jogging time was 1 h 20 min? $\frac{4}{3}$



Let x = time up

$\frac{4}{3}-x$ = time down

$6x = 10\left(\frac{4}{3}-x\right)$

$6x = \frac{40}{3} - 10x$

$16x = \frac{40}{3}$

$x = \frac{40}{3}\cdot\frac{1}{16} = \frac{5}{6}$

total distance

10km

12) Lina Chen invested $24,000, part at 8% and the rest at 7.2%. How much did she invest at each rate if her income from the 8% investment is two thirds that of the 7.2% investment?

$I = Prt$

$= \frac{2}{3} \times$

Principal	x Rate	= Interest
$9000 x	.08	.08x
24000−x $15,000	.072	.072(24000−x)

$$0.08x = \frac{2}{3}(.072(24000-x))$$

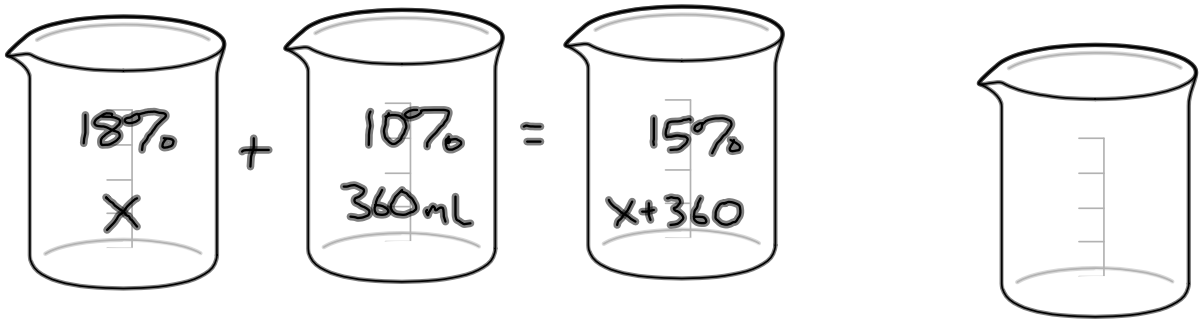
$$0.08x = .048(24000-x)$$

$$0.08x = 1152 - .048x$$

$$0.128x = 1152$$

$$x = 9000$$

14) How much of an 18% solution of sulfuric acid should be added to 360 mL of a 10% solution to obtain a 15% solution?



16) Pipes A and B can fill a storage tank in 8 h and 12 h, respectively. With the tank empty, pipe A was turned on at noon, and then pipe B was turned on at 1:30 P.M. At what time was the tank full? **5:24 P.M.**

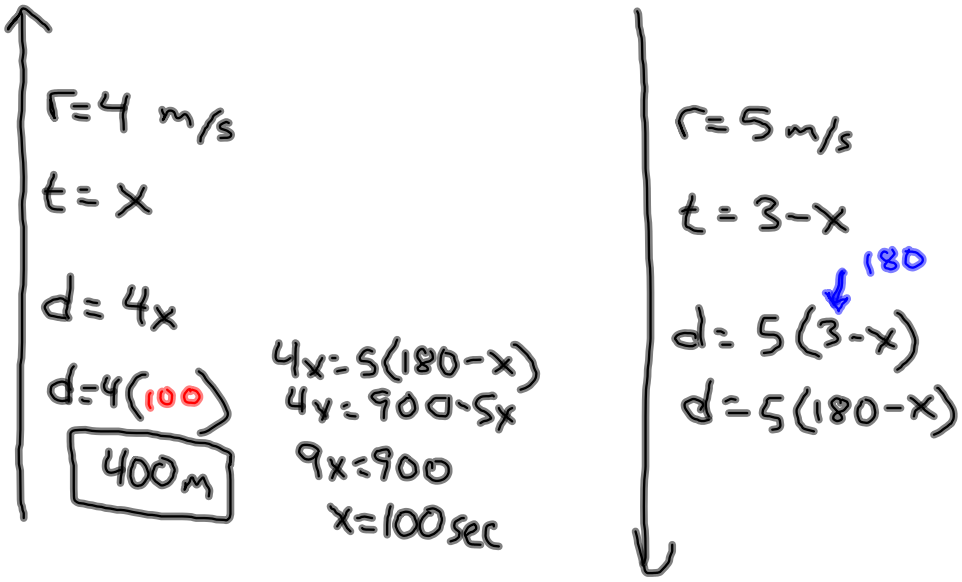
$\frac{\text{together}}{\text{alone}}$ Let x = time together

$$\left(\frac{x+1.5}{8} + \frac{x}{12} = 1\right)24$$

$$3(x+1.5) + 2x = 24$$
$$3x + 4.5 + 2x = 24$$
$$5x = 19.5$$
$$x = 3.9$$

3hrs 54min
+ 1hr 30min
5hr 24min

18) An elevator went from the bottom to the top of a tower at an average speed of 4 m/s, remained at the top for 90 sec, and then returned to the bottom at 5 m/s. If the total elapsed time was $4^1/_2$ min, how high is the tower?



20) A car radiator is filled with 5 L of a 25% anitfreeze solution. How many liters must be drawn off and replaced by a 75% anitfreeze solution to leave the radiator filled with a 55% antifreeze solution?