Premium coffee is $9.50/lb, Supreme coffee is $11.75/lb and Blend coffee is $10.00/lb. How many pounds of Premium coffee beans should be mixed with two pounds of Supreme coffee to make Blend coffee?

	Price	Pounds	Total
Premium	9.50	x	$9.5x$
Supreme	11.75	2	23.50
Blend	10	$2+x$	$20+10x$

$9.5x + 23.50 = 20 + 10x$

$-.5x = -3.5$

$x = 7$

7 pounds of Premium

A car's radiator should contain a solution of 50% antifreeze. Bo has 2 gallons of 35% antifreeze. How many gallons of 100% antifreeze should he add to his solution to produce a solution of 50% antifreeze?

	%	Gallons	Total
35%	35	2	70
100%	100	x	$100x$
50% Blend	50	$2+x$	$100+50x$

+

=

$70 + 100x = 100 + 50x$

$50x = 30$

$x = .6$

A car and an emergency are heading toward each other. The car is traveling at a speed of 30 mph or 44 feet per second. The emergency vehicle is traveling at a speed of 50 mph or about 74 feet per second. If the vehicles are 1000 feet apart and the conditions are ideal, in how many seconds will the drivers pass each other?

Car + Emergency = dist
r·t r·t

$44t + 74t = 1000$

$\frac{118t}{118} = \frac{1000}{118}$

$t = 8.5$ sec

A chemistry experiment calls for a 30% solution of copper sulfate. Kendra has 40 milliliters of 25% solution. How many milliliters of 60% solution should she add to make a 30% solution?

	%	mL	Total
25%	25	40	1000
60%	60	x	$60x$
30%	30	$40+x$	$1200+30x$

$1000 + 60x = 1200 + 30x$
$-1000 \quad -30x \quad -1000 \quad -30x$

$30x = 200$

$\frac{30x}{30} = \frac{200}{30}$

$x = 6.67$