

Mixture Problems

Brand x sells 21 oz bags of mixed nuts that contained 29% peanuts. To make their product they combined Brand A mixture with contains 35% peanuts and Brand B mixture with contains 25% peanuts. How much of each do they need to use?

	A	+	B	=	X
%	$0.35x$	+	$0.25y$	=	0.29
oz	x	+	y	=	21
	$x = \# \text{ oz Brand A}$		$y = \# \text{ oz Brand B}$		

$$\frac{0.35x + 0.25y}{21} = 0.29$$

$$x + y = 21$$

Clear the denominator
• 21

$$0.35x + 0.25y = 0.29(21)$$

$$0.35x + 0.25y = 6.09$$

$$x + y = 21$$

$$y = 21 - x$$

SUBSTITUTE

$$0.35x + 0.25(21 - x) = 6.09$$

Distribute
Combine Like Terms

Solve for x $\rightarrow x = 8.4$

$$21 - 8.4$$

$$y = 12.6$$

Brand X uses 8.4 oz of Brand A Peanuts
and 12.6 oz of Brand B Peanuts

1) How many kg of a 30% salt solution and how many kg of a 15% salt solution must be mixed to make 60kg of a 20% salt solution?

	30%	15%	20%
%	$0.3x$	$0.15y$	$0.20(60)$
kg	x	y	60

30% sol = x
15% sol = y

$$0.3x + 0.15y = 12 \quad x + y = 60$$

⋮

$$x = 20 \text{ kg} \quad y = 40 \text{ kg}$$