

## How do you make chocolate milk?

Mrs. Green has 10 L of chocolate milk. If the chocolate milk mixture is 15% chocolate, how many liters of chocolate are in the mixture? How many liters of milk are in the mixture?

1.5 L of chocolate  
8.5 L of milk

Michaelangelo has 20 L of an acidic solution that is made up of an acid and distilled water. If the solution is 25% acid, how many liters of the solution are water?

15 L water  
5 L acid

→ 100%

→ 0%

Beyonce has 15 L of hydrochloric acid  $\rightarrow 100\%$  and 32 L of distilled water  $\rightarrow 0\%$ . If she combines them, what percent of the solution is acid?

$$\frac{15}{47} = \frac{15}{15+32} = \frac{\# \text{ of L of acid}}{\# \text{ of L}}$$

Batting average: A baseball player currently has a 3 hits for 11 at bats. How many more hits does he need to hit in order to improve his batting average to 0.500?

$$\frac{3+x}{11+x} = 0.5$$

$$3+x = 0.5(11+x)$$

$$x = 5 \text{ more hits}$$

I want to mix a 70% saline solution with 8 liters of a 25% saline solution, so that I get a 40% saline solution. How many liters of the 70% solution do I need?

$$\frac{x \cdot 0.7 + 8 \cdot 0.25}{x+8} = 0.4$$

$$[0.7x + 2 = 0.4(x+8)] \cdot 10$$

$$7x + 20 = 4(x+8)$$

4 L

$$7x + 20 = 4(x + 8)$$

TL

$$7x + 20 = 4x + 32$$

$$3x = 12$$

$$x = 4$$

How many liters of a 75% alcohol solution must be added to 6 liters of a 45% alcohol concentration to create an overall solution of 50% alcohol?

$$\frac{x \cdot 0.75 + 6 \cdot 0.45}{x + 6} = 0.5$$

$$[0.75x + 6 \cdot 0.45 = 0.5(x + 6)] \cdot 100$$

$$75x + 45 \cdot 6 = 50(x + 6)$$

$$75x + 270 = 50x + 300$$

$$25x = 30$$

$$x = \frac{30}{25} = 1.2$$

1.2L

Mark and his brother David are fighting over a paper airplane while playing in their yard. Mark grabs the plane and takes off running at a rate of 7.5 miles per hour. One minute later, David realizes what happened and he starts to chase him at a rate of 9mph. In minutes, how long will it take David to reach Mark and how far will they have run?