

Answer on Question#43703 – Math – Algebra

A 12 liters solution is $33\frac{1}{3}\%$ acid. How much water should be added to get the solution 20% acid?

Solution:

$$33\frac{1}{3}\% = \frac{33\frac{1}{3}}{100} = \frac{\frac{100}{3}}{100} = \frac{1}{3}$$

$$20\% = \frac{20}{100} = 0.2$$

12 liters of $33\frac{1}{3}\%$ solution has acid:

$$12 \cdot \frac{1}{3} = 4 \text{ liters}$$

Let x liters of water should be added, then solution should be $(x + 12)$ liters

So

$$\frac{4}{x + 12} = 0.2$$

$$4 = 0.2x + 2.4$$

$$0.2x = 1.6$$

$$x = 8$$

Answer: 8 liters water should be added.