

1. How many gallons of a solution containing 55% glycerine, should be added to 25 gallons of a solution containing 28% glycerine, to give a solution that contains 35% glycerine?

Solution.

Let's denote the number of gallons that we need to find as x . So, amount of glycerin in 35% solution must be equal the amount of glycerin in 28% solution plus 55% solution.

Amount of glycerin in 55% solution is $0.55x$. Amount of glycerin in 28% solution is:

$$0.28 * 25 = 7$$

Amount of glycerin in 35% solution is:

$$0.35 * (25 + x)$$

So, we have equation:

$$0.35 * (25 + x) = 0.55x + 7$$

$$8.75 + 0.35x = 0.55x + 7$$

$$0.2x = 1.75$$

$$x = 8.75$$

Answer: We need 8.75 gallons of a solution containing 55% glycerine.

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