

Answer on Question #56332 – Math – Algebra

Food provisions in a garrison are sufficient to meet the requirement of 1200 soldiers for 45 days. How long will the food last if 600 more soldiers join the garrison?

Solution

Method 1

if 600 more soldiers join the garrison, then there will be the requirement of

$$1200 + 600 = 1800 \text{ soldiers.}$$

Let x days meet the requirement of 1800 soldiers. Then

$$1200 \cdot 45 = 1800 \cdot x,$$

hence

$$x = \frac{1200}{1800} \cdot 45 = \frac{12}{18} \cdot 45 = \frac{2}{3} \cdot 45 = 30 \text{ days.}$$

Method 2

if 600 more soldiers join the garrison, then there will be the requirement of

$$1200 + 600 = 1800 \text{ soldiers.}$$

Next,

600 is one third of 1800, because $1800 / 600 = 3$;

15 is one third of the initial quantity of soldiers (45), because $45 / 15 = 3$.

This means that we added $1/3$ of the quantity of provisions to the initial quantity. So, we should subtract $1/3$ of the initial quantity of soldiers:

$$45 - 15 = 30.$$

Answer: 30.