

# Fractions

1. A tank measuring 20 cm by 12 cm by 15 cm was filled with some water. When  $\frac{1}{10}$  of the water in the tank was poured into a tub, the volume of water in the tub increased by  $12 \text{ cm}^3$ . What fraction of the tank was not filled with water at first?

Answers: \_\_\_\_\_

2. Mathew had some pens. On the first day, he sold  $\frac{1}{4}$  of them. On the second day, he sold  $\frac{1}{3}$  more than the number of pens sold on the first day. He sold the remaining pens on the third day. If he sold 15 more pens on the second day than on the third day, how many pens did he have at first?

Answers: \_\_\_\_\_

# Fractions

1. Step 1 : Find the volume of water in the tank

$$\begin{aligned} 1 \text{ unit} &\rightarrow 12 \text{ cm}^3 \\ 10 \text{ units} &\rightarrow 10 \times 12 \text{ cm}^3 \\ &= 120 \text{ cm}^3 \end{aligned}$$

- Step 2 : Find the capacity of the tank

$$20 \text{ cm} \times 12 \text{ cm} \times 15 \text{ cm} = 3600 \text{ cm}^3$$

- Step 3 : Find the volume that was not filled in the tank at first

$$3600 \text{ cm}^3 - 120 \text{ cm}^3 = 3480 \text{ cm}^3$$

- Step 4 : Find the fraction of the tank that was not filled with water at first

$$\frac{3480}{3600} = \frac{348}{360} = \frac{29}{30}$$

$\frac{29}{30}$  of the tank was not filled with water at first.

Answer:  $\frac{29}{30}$

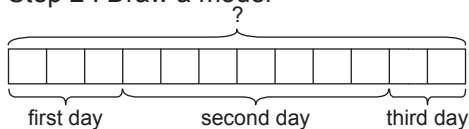
2. Step 1 : Find the equivalent fractions of the pens sold on all three days

$$\text{First day} \rightarrow \frac{1}{4} = \frac{3}{12}$$

$$\begin{aligned} \text{Second day} &\rightarrow \frac{1}{3} + \frac{1}{4} = \frac{4}{12} + \frac{3}{12} \\ &= \frac{7}{12} \end{aligned}$$

$$\text{Third day} \rightarrow \frac{12}{12} - \frac{3}{12} - \frac{7}{12} = \frac{2}{12}$$

- Step 2 : Draw a model



- Step 3 : Find the total number of pens he had at first

$$7 - 2 = 5 \text{ units}$$

$$5 \text{ units} \rightarrow 15$$

$$1 \text{ unit} \rightarrow 15 \div 5 = 3$$

$$12 \text{ units} \rightarrow 3 \times 12 = 36$$

He had 36 pens at first.

Answer: 36 pens

Adapted:

101 Must-Know Challenging Maths Word Problems Book 6

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