

Word Problems

SUBJECT : MATHEMATICS
CHAPTER NUMBER: 03
CHAPTER NAME : FRACTIONS

CHANGING YOUR TOMORROW

Learning outcomes

Students will be able to use addition/ subtraction, multiplication /division to solve word problems.



What fraction is 6 bananas of four dozen bananas ?

- $\frac{1}{8}$

**1. A line AB is of length 6 cm. Another line CD is of length 15 cm.
What fraction is:**

(i) the length of AB to that of CD?

(ii) $\frac{1}{2}$ the length of AB to that of $\frac{1}{3}$ of CD?

(iii) $\frac{1}{5}$ of CD to that of AB?

Solution:

It is given that

Length of AB = 6 cm

Length of CD = 15 cm

(i) The length of AB to that of CD

$$= \frac{6}{15}$$

$$= \frac{2}{5}$$

(ii) $\frac{1}{2}$ the length of AB to that of $\frac{1}{3}$ of CD

$$\frac{1}{2} \text{ of AB} = \frac{1}{2} \times 6 = 3 \text{ cm}$$

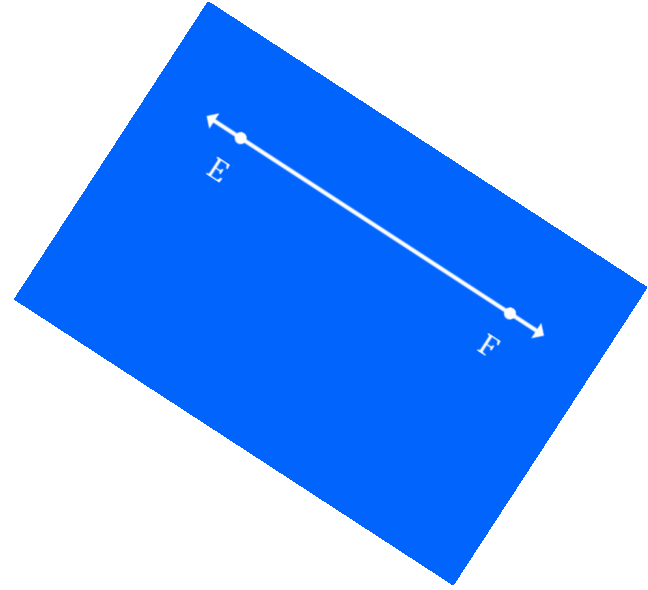
$$\frac{1}{3} \text{ of CD} = \frac{1}{3} \times 15 = 5 \text{ cm}$$

$$\text{So } \frac{1}{2} \text{ the length of AB to that of } \frac{1}{3} \text{ of CD} = \frac{3}{5}$$

(iii) $\frac{1}{5}$ of CD to that of AB

$$\frac{1}{5} \text{ of CD} = \frac{1}{5} \times 15 = 3 \text{ cm}$$

$$\frac{1}{5} \text{ of CD to that of AB} = \frac{3}{6} = \frac{1}{2}$$



6. In a business, Ram and Deepak invest $\frac{3}{5}$ and $\frac{2}{5}$ of the total investment. If Rs 40, 000 is the total investment, calculate the amount invested by each.

Solution:

It is given that

Total investment = ₹ 40, 000

Ram's investment = $\frac{3}{5}$ of ₹ 40, 000

It can be written as

$= \frac{3}{5} \times 40, 000$

By further calculation

$= 3 \times 8000$

$= ₹ 24, 000$

Deepak's investment = $\frac{2}{5}$ of ₹ 40, 000

It can be written as

$= \frac{2}{5} \times 40, 000$

By further calculation

$= 2 \times 8000$

$= ₹ 16, 000$



8. A picture was marked at Rs 90. It was sold at $\frac{3}{4}$ of its marked price. What was the sale price?

Solution:

It is given that

Marked price of picture = Rs90

Sale price of picture = $\frac{3}{4}$ of Rs 90

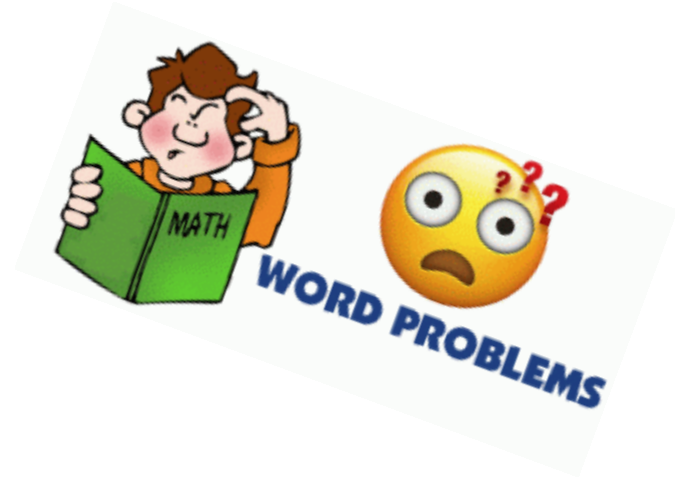
We can write it as

$$= \frac{3}{4} \times 90$$

$$= \text{Rs } 270/4$$

$$= \text{Rs } 67 \frac{1}{2}$$

$$= \text{Rs } 67.50$$



12. Vijay weighed $65 \frac{1}{2}$ kg. He gained $1 \frac{2}{5}$ kg during the first week, $1 \frac{1}{4}$ kg during the second week, but lost $\frac{5}{16}$ kg during the third week. What was his weight after the third week?

Solution:

It is given that

Weight of Vijay = $65 \frac{1}{2}$ kg

Weight gained during first week = $1 \frac{2}{5}$ kg

Weight gained during second week = $1 \frac{1}{4}$ kg

Weight lost during third week = $\frac{5}{16}$ kg

So the weight of Vijay after third week = $65 \frac{1}{2} + 1 \frac{2}{5} + 1 \frac{1}{4} - \frac{5}{16}$

It can be written as

$$= 131/2 + 7/5 + 5/4 - 5/16$$

LCM of 2, 5, 4 and 16 is 80-

$$= (5240 + 112 + 100 - 25)/ 80$$

By further calculation

$$= (5452 - 25)/ 80$$

$$= 5427/80 \text{ kg}$$

$$= 67 \frac{67}{80} \text{ kg}$$



15. Shyam bought a refrigerator for Rs 5,000. He paid $\frac{1}{10}$ of the price in cash and the rest in 12 equal monthly instalments. How much had he to pay each month?

Solution:

Total cost of refrigerator = Rs 5000

Cash paid = $\frac{1}{10}$ of Rs 5000

= $\frac{1}{10} \times 5000$

= Rs 500

So the balance amount = $5000 - 500 = \text{Rs } 4500$

Number of instalments = 12

So the amount to be paid each month = $4500 \div 12$

We can write it as

= $4500 \times \frac{1}{12}$

= Rs 375

Question-16:-

A lamp post has half of its length in mud, and $\frac{1}{3}$ of its length in water.

(i) What fraction of its length is above the water ?

(ii) If $3\frac{1}{3}$ m of the lamp post is above the water, find the whole length of the lamp post.

Answer-16:-

(i)

Let length of the post = 1 m

then length of post in mud = $\frac{1}{2}$ m

and length of post in water = $\frac{1}{3}$ m

\therefore Length of post above the water

$$= 1 - \left(\frac{1}{2} + \frac{1}{3} \right) = 1 - \frac{(3+2)}{6}$$

$$= 1 - \frac{5}{6} = \frac{(6-5)}{6} = \frac{1}{6} \text{ m}$$

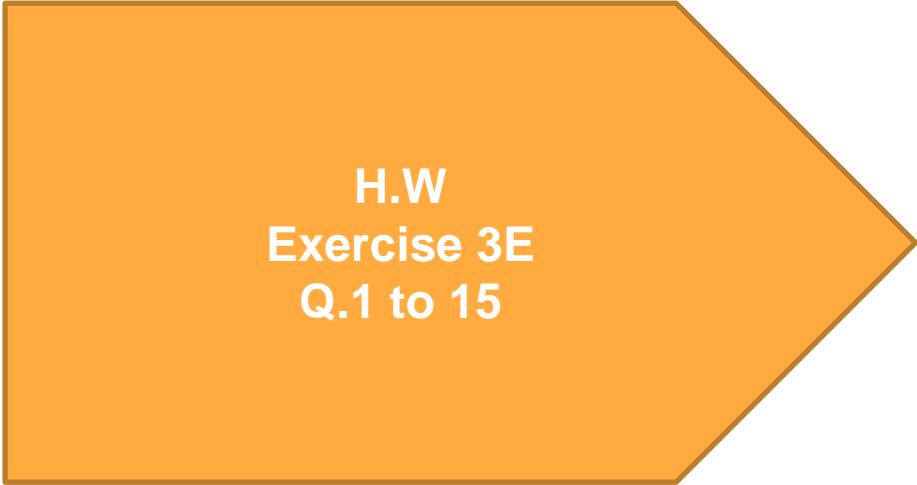
(ii)

But length of post above water

$$= 3 \frac{1}{3} \text{ m} = \frac{10}{3} \text{ m}$$

$$\therefore \frac{1}{6} \text{th of total length} = \frac{10}{3} \text{ m}$$

$$\therefore \text{Total length} = \frac{10}{3} \times \frac{6}{1} = 20 \text{ m}$$



H.W
Exercise 3E
Q.1 to 15

THANKING YOU
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