

GIRLS' HIGH SCHOOL AND COLLEGE, PRAYAGRAJ

WORKSHEET-5

SESSION 2020-2021

CLASS 7 (A,B,C,D,E&F)

SUBJECT-MATHEMATICS

Note- Parents please ensure that the student takes the reference of the chapter from the links mentioned below.

<https://www.youtube.com/watch?v=nIkEfdk2vII>

<https://www.youtube.com/watch?v=v0GRcwCiVmw>

Chapter- FRACTION

Topic –Word Problems Based On Fractions

In the previous worksheets we have learnt the basic concepts related to fractions. We have also learnt addition, subtraction, multiplication and division of fractions.

In the present worksheet, we will solve word problems based on fractions.

Solved Examples

(i) What fraction is 6 bananas of four dozen bananas?

Solution

Here 6 bananas are to be compared with 4 dozen bananas.

4 dozens = $12 \times 4 = 48$ bananas

Therefore required fraction = $\frac{6}{48} = \frac{1}{8}$

(ii) A line AB is of length 6 cm. Another line CD is of length 15 cm. What fraction is

(a) The length of AB to the length of CD?

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

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

Solution

(a) The required fraction = $\frac{\text{The length of } AB}{\text{The length of } CD} = \frac{6\text{ cm.}}{15\text{ cm.}} = \frac{6 \div 3}{15 \div 3} = \frac{2}{5}$
Divide each of them by 3 (HCF of both numbers)

(b) $\frac{1}{2}$ of the length of AB = $\frac{1}{2} \times 6 = 3 \text{ cm}$

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

The required fraction = $\frac{3\text{ cm.}}{5\text{ cm.}} = \frac{3}{5}$

(c) $\frac{1}{5}$ of the length of CD = $\frac{1}{5} \times 15 = 3 \text{ cm}$

The required fraction = $\frac{3\text{ cm.}}{6\text{ cm}}$

= $\frac{3 \div 3}{6 \div 3} = \frac{1}{2}$ (dividing each by 3)

(iii) Subtract $\left(\frac{2}{7} - \frac{5}{21}\right)$ from the sum of $\frac{3}{4}, \frac{5}{7}$ and $\frac{7}{12}$

Solution

Value of sum of $\frac{3}{4}, \frac{5}{7}$ and $\frac{7}{12} = \frac{3}{4} + \frac{5}{7} + \frac{7}{12}$
= $\frac{[(3 \times 21) + (5 \times 12) + (7 \times 7)]}{84}$ (LCM of 4, 7 and 12 is 84)
= $\frac{63 + 60 + 49}{84} = \frac{172 \div 4}{84 \div 4}$ (divide each by 4) = $\frac{43}{21}$

Value of $\left(\frac{2}{7} - \frac{5}{21}\right) = \frac{(2 \times 3) - 5}{21} = \frac{6 - 5}{21} = \frac{1}{21}$

Now $\left(\frac{43}{21} - \frac{1}{21}\right) = \frac{42 \div 21}{21 \div 21}$ (divide each by 21) = 2

Q1. Solve the following

(i) From a sack of potatoes weighing 120 Kg, a merchant sells portion weighing 6 kg, $5\frac{1}{4}$ Kg, $9\frac{1}{2}$ kg and $9\frac{3}{4}$ kg respectively.

- (a) How many kg did he sell?
(b) How many kg are still left in the bag?

(ii) If a boy works for six consecutive days for 8 hours, $7\frac{1}{2}$ hours, $8\frac{1}{4}$ hours, $6\frac{1}{4}$ hours, $6\frac{3}{4}$ hours and 7 hours respectively, how much money will he earn at the rate of ₹ 36 per hour?

(iii) A student bought $4\frac{1}{3}$ meters of yellow ribbon, $6\frac{1}{6}$ meters of red ribbon and $3\frac{2}{9}$ meters of blue ribbon for decorating a room. How many meters of ribbon did he buy?

(iv) Write all the natural numbers that lie between 5 and 15.

- (a) How many of these natural numbers are odd?
- (b) What fraction of these natural numbers are even?

Solved Example

(iv) The monthly income of a man is ₹ 18,000. He gives one third to his wife and one third of the remaining he spends on his children's education. Find

- (a) The money he gave to his wife.
- (b) The money he spends on children's education
- (c) The money still left with him

Solution

The man gives to his wife = $\frac{1}{3}$ of ₹ 18000 = $\frac{1}{3} \times 18000 = ₹ 6000$

Remaining money with him is ₹ 18000 - ₹ 6000 = ₹ 12,000

He spends on children education $\frac{1}{3}$ of ₹ 12000 = $\frac{1}{3} \times ₹ 12000 = ₹ 4000$

The money still left with the man = ₹ 18,000 - ₹ (6000+4000) = ₹ 8,000

Q2. Solve the following

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

(ii) Geeta had 30 problems for homework. She worked out $\frac{2}{3}$ of them. How many problems were still left to be worked out by her?

(iii) A picture was marked at ₹ 90. It was sold at $\frac{3}{4}$ of its marked price. What was the sale price?

(iv) Mani has 15 parcels of oranges. What was the total weight of the parcels, if each weighed $10\frac{1}{2}$ kg.

Solved Examples

(v) 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

$$\text{Vijay's initial weight} = 65\frac{1}{2} kg$$

$$\text{His net gain in weight at the end of three weeks} = 1\frac{2}{5} kg + 1\frac{1}{4} kg - \frac{5}{16} kg$$

$$\text{Now, } \left(1\frac{2}{5} + 1\frac{1}{4} - \frac{5}{16}\right) kg = \left(\frac{7}{5} + \frac{5}{4} - \frac{5}{16}\right) kg = \frac{[(7 \times 16) + (5 \times 20) - (5 \times 5)]}{80} kg = \frac{(112 + 100 - 25)}{80} kg$$

$$\frac{212 - 25}{80} kg = \frac{187}{80} kg \text{ (gain in weight)}$$

$$\text{Therefore, Vijay's weight at the end of third week} = 65\frac{1}{2} kg + \frac{187}{80} kg$$

$$= \frac{131}{2} + \frac{187}{80} kg = \frac{[(131 \times 40) + (187 \times 1)]}{80} kg$$

$$= \frac{5240 + 187}{80} kg = \frac{5427}{80} kg = 67\frac{67}{80} kg$$

(vi) A rope is $25\frac{1}{2} m$ long. How many pieces each of $1\frac{1}{2} m$ can be cut out from it.

Solution

$$\text{The number of pieces} = 25\frac{1}{2} m \div 1\frac{1}{2} m$$

$$= \frac{51}{2} m \div \frac{3}{2} m = \frac{51}{2} \times \frac{2}{3} = \frac{102}{6} = \frac{51}{3} = 17 \text{ pieces}$$

(vii) In a school, $\frac{4}{5}$ children are boys. If the number of girls is 200, find the number of boys?

Solution

$$\text{Fraction of boys} = \frac{4}{5}$$

$$\therefore \text{fraction of girls} = 1 - \frac{4}{5} = \frac{1}{5}$$

as, $\frac{1}{5}$ of the children are girls

$$\therefore \text{total number of students} = 200 \times 5 = 1000 \text{ students}$$

$$\therefore \text{the number of boys} = 1000 - 200 = 800$$

(viii) A man spends $\frac{2}{5}$ of his salary on food and $\frac{3}{10}$ on house rent and electricity. What fraction of his salary is still left with him?

Solution

$$\text{Total expenditure of the man} = \frac{2}{5} + \frac{3}{10} = \frac{4+3}{10} = \frac{7}{10}$$

$$\text{Fraction of salary left} = 1 - \frac{7}{10} = \frac{10-7}{10} = \frac{3}{10}$$

(ix) A man spends $\frac{2}{7}$ of his savings and still has ₹ 1,000 left with him. How much more were his savings?

Solution

$$\text{Amount of money spent by the man} = \frac{2}{7}. \therefore \text{savings of the man} = 1 - \frac{2}{7} = \frac{5}{7}$$

$$\frac{5}{7} \text{ of his savings} = ₹1000$$

$$\therefore \text{his total savings} = 1000 \div \frac{5}{7} = 1000 \times \frac{7}{5} = \frac{7000}{5} = ₹1400$$

(x) $\frac{4}{7}$ of a pole is in the mud. When $\frac{1}{3}$ of it is pulled out, 250 cm of the pole is still in the mud. What is the full length of the pole?

Solution

$$\frac{4}{7} \text{ of the pole} - \frac{1}{3} \text{ of the pole} = 250 \text{ cm}$$

$$\left(\frac{4}{7} - \frac{1}{3}\right) \text{ of the pole} = 250 \text{ cm}$$

$$\therefore \frac{5}{21} \text{ of the pole} = 250 \text{ cm}$$

$$\therefore \text{length of the pole} = 250 \times \frac{21}{5} = 1050 \text{ cm}$$

Q3. Solve the following

(i) The height of two vertical poles above the earth's surface are $14\frac{1}{4} \text{ m}$ and $22\frac{1}{3} \text{ m}$ respectively. How much higher is the second pole as compared with the first pole?

(ii) A man spends $\frac{2}{5}$ of his salary on food and $\frac{3}{10}$ of the remaining on house rent and electricity. What fraction of his salary is still left with him?

(iii) Shyam bought a refrigerator for ₹5000. He paid $\frac{1}{10}$ of the price in cash and the rest in 12 equal monthly installments. How much had he to pay each month.

(iv) A lamp post has $\frac{1}{2}$ its length in mud and $\frac{1}{3}$ of its length in water.

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

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

(v) I spent $\frac{3}{5}$ of my saving and still have ₹ 2000 left. What were my savings?

Solved Examples

(xi) If $\frac{4}{5}$ of an estate is worth ₹ 42,000, find the total worth of the whole estate. Also find the value of $\frac{3}{7}$ of it.

Solution

Let the worth of the whole estate be equal to ₹ X.

$$\therefore \frac{4}{5} \text{ of } ₹ X = ₹ 42000$$

$$\therefore X = ₹ 42000 \times \frac{5}{4} = ₹ 52,500$$

$$\text{Now, value of } \frac{3}{7} \text{ of } ₹ 52500 = \frac{3}{7} \times 52500 = ₹ 22,500$$

(x) From a piece of land, $\frac{1}{3}$ is bought by Rajesh and $\frac{1}{3}$ of the remaining is bought by Manoj. If 600 m^2 of the land is still remaining unsold, find the total area of the land.

Solution

Let the total area of the land be equal to $X \text{ m}^2$.

$$\text{Area of the land bought by Rajesh} = \frac{1}{3} \text{ of } X = \frac{X}{3} \text{ m}^2$$

$$\text{Area of remaining land} = X - \frac{X}{3} = \frac{3X-X}{3} = \frac{2X}{3} \text{ m}^2$$

$$\text{Area of the land bought by Manoj} = \frac{1}{3} \text{ of } \frac{2X}{3} \text{ m}^2 = \frac{2X}{9} \text{ m}^2$$

$$\text{Total area of the land sold out} = \frac{X}{3} \text{ m}^2 + \frac{2X}{9} \text{ m}^2 = \frac{5X}{9} \text{ m}^2$$

$$\text{Area of the land unsold} = X - \frac{5X}{9}m^2 = \frac{4X}{9}m^2$$

$$\text{Now it is given that } \frac{4X}{9}m^2 = 600 m^2 \text{ or } X = 600 \times \frac{9}{4} = 1,350 m^2 \mathbf{Ans}$$

Q4. Solve the following

- (i) After going $\frac{3}{4}$ of my journey, I find that I have covered 16 km. How much journey is still left.
- (ii) When Krishna travelled 25 km, he found that $\frac{3}{5}$ of his journey was still left. What was the length of the whole journey.
- (iii) A boy spent $\frac{3}{5}$ of his money on buying cloth and $\frac{1}{4}$ of the remaining on buying shoes. If initially he has ₹ 2,400, how much did he spend on shoes?

The End