

Class-6(Maths solution)By: Prashant kr.

7.Fraction (Ex- 7.6)

1. Solve

(a) $2/3 + 1/7$

(b) $3/10 + 7/15$

(c) $4/9 + 2/7$

(d) $5/7 + 1/3$

(e) $2/5 + 1/6$

(f) $4/5 + 2/3$

(g) $3/4 - 1/3$

(h) $5/6 - 1/3$

(i) $2/3 + 3/4 + 1/2$

(j) $1/2 + 1/3 + 1/6$

(k) $1\frac{1}{3} + 3\frac{2}{3}$

(l) $4\frac{2}{3} + 3\frac{1}{4}$

(m) $16/5 - 7/5$

(n) $4/3 - 1/2$

Solutions:

(a) $2/3 + 1/7$

Taking LCM

$$[(2 \times 7) + (1 \times 3)] / 21$$

$$= (14 + 3) / 21$$

$$= 17 / 21$$

(b) $3/10 + 7/15$

Taking LCM 30

$$= [(3 \times 3) + (7 \times 2)] / 30$$

$$= (9 + 14) / 30$$

$$= 23 / 30$$

(c) $4/9 + 2/7$

Taking LCM 63

$$= [(4 \times 7) + (2 \times 9)] / 63$$

$$= (28 + 18) / 63$$

$$= 46 / 63$$

(d) $5/7 + 1/3$

Taking LCM 21

$$= [(5 \times 3) + (1 \times 7)] / 21$$

$$= (15 + 7) / 21$$

$$= 22 / 21$$

(e) $2/5 + 1/6$

Taking LCM 30

$$= [(2 \times 6) + (1 \times 5)] / 30$$

$$= (12 + 5) / 30$$

$$= 17 / 30$$

(f) $4/5 + 2/3$

$$\begin{aligned}
 & \text{Taking LCM 15} \\
 & = [(4 \times 3) + (2 \times 5)] / 15 \\
 & = (12 + 10) / 15 \\
 & = 22 / 15
 \end{aligned}$$

$$\begin{aligned}
 \text{(g) } & 3/4 - 1/3 \\
 & \text{Taking LCM 12} \\
 & = [(3 \times 3) - (1 \times 4)] / 12 \\
 & = (9 - 4) / 12 \\
 & = 5 / 12
 \end{aligned}$$

$$\begin{aligned}
 \text{(h) } & 5/6 - 1/3 \\
 & \text{Taking LCM 6} \\
 & = [(5 \times 1) - (1 \times 2)] / 6 \\
 & = (5 - 2) / 6 \\
 & = 3 / 6 \\
 & = 1 / 2
 \end{aligned}$$

$$\begin{aligned}
 \text{(i) } & 2/3 + 3/4 + 1/2 \\
 & \text{Taking LCM 12} \\
 & = [(2 \times 4) + (3 \times 3) + (1 \times 6)] / 12 \\
 & = (8 + 9 + 6) / 12 \\
 & = 23 / 12
 \end{aligned}$$

$$\begin{aligned}
 \text{(j) } & 1/2 + 1/3 + 1/6 \\
 & \text{Taking LCM 6} \\
 & = [(1 \times 3) + (1 \times 2) + (1 \times 1)] / 6 \\
 & = (3 + 2 + 1) / 6 \\
 & = 6 / 6 \\
 & = 1
 \end{aligned}$$

$$\begin{aligned}
 \text{(k) } & 1\frac{1}{3} + 3\frac{2}{3} \\
 & = [(3 \times 1) + 1] / 3 + [(3 \times 3) + 2] / 3 \\
 & = (3 + 1) / 3 + (9 + 2) / 3 \\
 & = 4 / 3 + 11 / 3 \\
 & = (4 + 11) / 3 \\
 & = 15 / 3 \\
 & = 5
 \end{aligned}$$

$$\begin{aligned}
 \text{(l) } & 4\frac{2}{3} + 3\frac{1}{4} \\
 & = [(3 \times 4) + 2] / 3 + [(3 \times 4) + 1] / 4 \\
 & = 14 / 3 + 13 / 4 \\
 & = [(14 \times 4) + (13 \times 3)] / 12 \\
 & = (56 + 39) / 12 \\
 & = 95 / 12
 \end{aligned}$$

$$\begin{aligned}
 \text{(m) } & 16/5 - 7/5 \\
 & = (16 - 7) / 5 \\
 & = 9 / 5
 \end{aligned}$$

$$\text{(n) } 4/3 - 1/2$$

$$\begin{aligned}
& \text{Taking LCM 6} \\
& = [(4 \times 2) - (1 \times 3)] / 6 \\
& = (8 - 3) / 6 \\
& = 5 / 6
\end{aligned}$$

2. Sarita bought $2/5$ metre of ribbon and Lalita $3/4$ metre of ribbon. What is the total length of the ribbon they bought?

Solutions:

Ribbon length bought by Sarita = $2/5$ metre

Ribbon length bought by Lalita = $3/4$ metre

Total length of the ribbon bought by both of them = $2/5 + 3/4$

$$\begin{aligned}
& \text{Taking LCM 20} \\
& = [(2 \times 4) + (3 \times 5)] / 20 \\
& = (8 + 15) / 20 \\
& = 23 / 20 \text{ metre}
\end{aligned}$$

\therefore Total length of the ribbon bought by both Sarita and Lalita is $23/20$ metre

3. Naina was given $1\frac{1}{2}$ piece of cake and Najma was given $1\frac{1}{3}$ piece of cake. Find the total amount of cake was given to both of them.

Solutions:

$$\text{Fraction of cake Naina got} = 1\frac{1}{2} = 3/2$$

$$\text{Fraction of cake Najma got} = 1\frac{1}{3} = 4/3$$

Total amount of cake given to both of them = $3/2 + 4/3$

$$\begin{aligned}
& = [(3 \times 3) + (4 \times 2)] / 6 \\
& = (9 + 8) / 6 \\
& = 17 / 6 \\
& = 2\frac{5}{6}
\end{aligned}$$

4. Fill in the boxes:

(a) $\square - 5/8 = 1/4$

(b) $\square - 1/5 = 1/2$

(c) $1/2 - \square = 1/6$

Solutions:

(a) $\square - 5/8 = 1/4$

$$\begin{aligned}
\square & = 1/4 + 5/8 \\
\square & = [(1 \times 2 + 5)] / 8 \\
\square & = 7/8
\end{aligned}$$

(b) $\square - 1/5 = 1/2$

$$\begin{aligned}
\square & = 1/2 + 1/5 \\
\square & = [(1 \times 5) + (1 \times 2)] / 10
\end{aligned}$$

$$\square = (5 + 2) / 10$$

$$\square = 7 / 10$$

$$(c) 1/2 - \square = 1/6$$

$$\square = 1/2 - 1/6$$

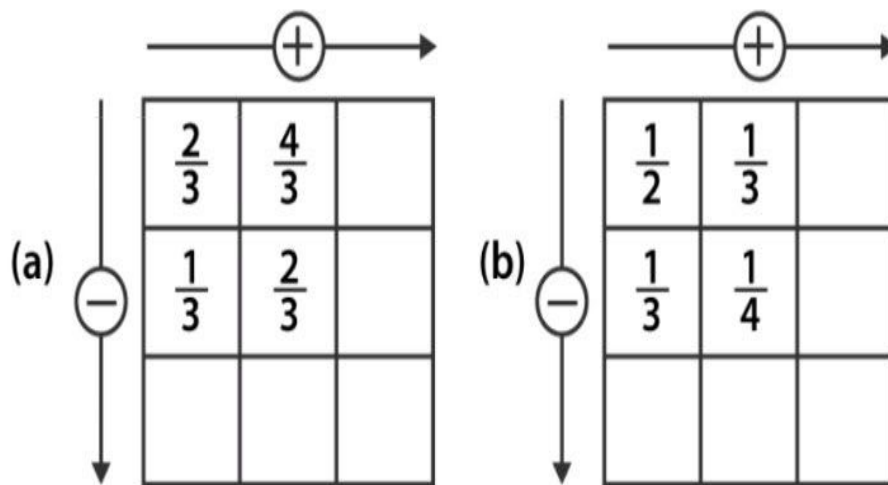
$$\square = [(1 \times 3) - (1 \times 1)] / 6$$

$$\square = (3 - 1) / 6$$

$$\square = 2 / 6$$

$$\square = 1 / 3$$

5. Complete the addition and subtraction box.



Solutions:

$$(a) 2/3 + 4/3$$

$$= (2 + 4) / 3$$

$$= 6 / 3$$

$$= 2$$

$$1/3 + 2/3$$

$$= (1 + 2) / 3$$

$$= 3 / 3$$

$$= 1$$

$$2/3 - 1/3$$

$$= (2 - 1) / 3$$

$$= 1 / 3$$

$$4/3 - 2/3$$

$$= (4 - 2) / 3$$

$$= 2 / 3$$

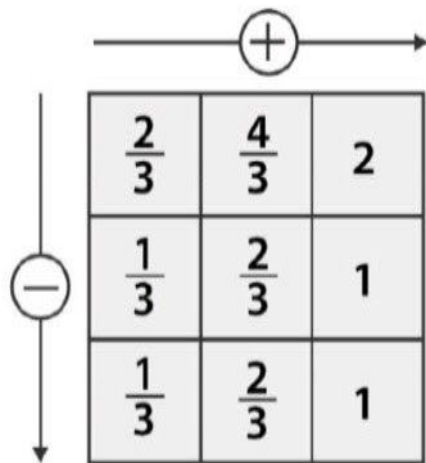
$$1/3 + 2/3$$

$$= (1 + 2) / 3$$

$$= 3 / 3$$

$$= 1$$

Hence, the complete given box is



$$\begin{aligned}
 \text{(b) } & \frac{1}{2} + \frac{1}{3} \\
 & = \frac{[(1 \times 3) + (1 \times 2)]}{6} \\
 & = \frac{(3 + 2)}{6} \\
 & = \frac{5}{6}
 \end{aligned}$$

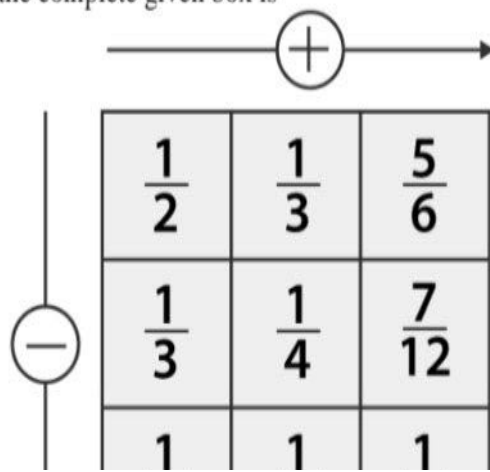
$$\begin{aligned}
 & \frac{1}{3} + \frac{1}{4} \\
 & = \frac{[(1 \times 4) + (1 \times 3)]}{12} \\
 & = \frac{(4 + 3)}{12} \\
 & = \frac{7}{12}
 \end{aligned}$$

$$\begin{aligned}
 & \frac{1}{2} - \frac{1}{3} \\
 & = \frac{[(1 \times 3) - (1 \times 2)]}{6} \\
 & = \frac{(3 - 2)}{6} \\
 & = \frac{1}{6}
 \end{aligned}$$

$$\begin{aligned}
 & \frac{1}{3} - \frac{1}{4} \\
 & = \frac{[(1 \times 4) - (1 \times 3)]}{12} \\
 & = \frac{(4 - 3)}{12} \\
 & = \frac{1}{12}
 \end{aligned}$$

$$\begin{aligned}
 & \frac{1}{6} + \frac{1}{12} \\
 & = \frac{[(1 \times 2) + 1]}{12} \\
 & = \frac{(2 + 1)}{12} \\
 & = \frac{3}{12} \\
 & = \frac{1}{4}
 \end{aligned}$$

Hence, the complete given box is



6. A piece of wire $\frac{7}{8}$ metre long broke into two pieces. One piece was $\frac{1}{4}$ metre long. How long is the other piece?

Solutions:

Total length of wire = $\frac{7}{8}$ metre

Length of one piece of wire = $\frac{1}{4}$ metre

Length of other piece of wire = Length of the original wire and this one piece of wire

$$\begin{aligned} &= \frac{7}{8} - \frac{1}{4} \\ &= \frac{[(7 \times 1) - (1 \times 2)]}{8} \\ &= \frac{(7 - 2)}{8} \\ &= \frac{5}{8} \end{aligned}$$

\therefore Length of the other piece of wire = $\frac{5}{8}$ metre

7. Nandini's house is $\frac{9}{10}$ km from her school. She walked some distance and then took a bus for $\frac{1}{2}$ km to reach the school. How far did she walk?

Solutions:

Distance of the school from house = $\frac{9}{10}$ km

Distance she travelled by bus = $\frac{1}{2}$ km

Distance walked by Nandini = Total distance of the school – Distance she travelled by bus

$$\begin{aligned} &= \frac{9}{10} - \frac{1}{2} \\ &= \frac{[(9 \times 1) - (1 \times 5)]}{10} \\ &= \frac{(9 - 5)}{10} \\ &= \frac{4}{10} \\ &= \frac{2}{5} \text{ km} \end{aligned}$$

\therefore Distance walked by Nandini is $\frac{2}{5}$ km

8. Asha and Samuel have bookshelves of the same size partly filled with books. Asha's shelf is $\frac{5}{6}$ th full and Samuel's shelf is $\frac{2}{5}$ th full. Whose bookshelf is more full? By what fraction?

Solutions:

Fraction of Asha's bookshelf = $\frac{5}{6}$

Fraction of Samuel's bookshelf = $\frac{2}{5}$

Convert these fractions into like fractions

$$\begin{aligned} \frac{5}{6} &= \frac{5}{6} \times \frac{5}{5} \\ &= \frac{(5 \times 5)}{(6 \times 5)} \\ &= \frac{25}{30} \end{aligned}$$

$$\begin{aligned} \frac{2}{5} &= \frac{2}{5} \times \frac{6}{6} \\ &= \frac{(2 \times 6)}{(5 \times 6)} \\ &= \frac{12}{30} \end{aligned}$$

$$\frac{25}{30} > \frac{12}{30}$$

$$\frac{5}{6} > \frac{2}{5}$$

\therefore Asha's bookshelf is more full than Samuel's bookshelf

$$\begin{aligned} \text{Difference} &= \frac{5}{6} - \frac{2}{5} \\ &= \frac{25}{30} - \frac{12}{30} \\ &= \frac{13}{30} \end{aligned}$$

9. Jaidev takes $2\frac{1}{5}$ minutes to walk across the school ground. Rahul takes $\frac{7}{4}$ minutes to do the

same. Who takes less time and by what fraction?

Solutions:

Time taken by Jaidev to walk across the school ground = $2\frac{1}{5} = 11/5$ minutes

Time taken by Rahul to walk across the school ground = $7/4$ minutes

Convert these fractions into like fractions

$$\begin{aligned}11/5 &= 11/5 \times 4/4 \\ &= (11 \times 4) / (5 \times 4) \\ &= 44/20\end{aligned}$$

$$\begin{aligned}7/4 &= 7/4 \times 5/5 \\ &= (7 \times 5) / (4 \times 5) \\ &= 35/20\end{aligned}$$

Clearly, $44/20 > 35/20$

$$11/5 > 7/4$$

\therefore Rahul takes less time than Jaidev to walk across the school ground

$$\begin{aligned}\text{Difference} &= 11/5 - 7/4 \\ &= 44/20 - 35/20 \\ &= 9/20\end{aligned}$$

Hence, Rahul walks across the school ground by $9/20$ minutes