

Lcm of 12 and 16 is 48.

$$\frac{19}{12} + \frac{37}{16} = \frac{76 + 111}{48} = \frac{187}{48} = 3\frac{43}{48}$$

6

Here, we need to find the sum of $\frac{1}{2}$, $\frac{1}{3}$ and $\frac{1}{6}$.

$$\therefore \frac{1}{2} + \frac{1}{3} + \frac{1}{6}$$

Lcm of 2, 3 and 6 is 6.

$$\frac{1}{2} + \frac{1}{3} + \frac{1}{6} = \frac{3 + 2 + 1}{6} = \frac{6}{6} = 1$$

Hence, Sanchi can finish her book before she returned it to the librarian.

7

Total time Akhil stayed at home =

$$\left(1\frac{1}{4} + \frac{1}{2} + \frac{2}{5}\right) \text{ hours}$$

$$= \frac{5}{4} + \frac{1}{2} + \frac{2}{5}$$

Lcm of 2, 4 and 5 = 20

∴ we have

$$\frac{5}{4} + \frac{1}{2} + \frac{2}{5} = \frac{25+10+8}{20} = \frac{43}{20} = 2\frac{3}{20}$$

Hence, Akhil stayed $2\frac{3}{20}$ hours at home.

(8)

Distance covered by Kanya on Sunday

$$= 2\frac{1}{3} \text{ km} + 1\frac{1}{4} \text{ km}$$

$$= \frac{7}{3} \text{ km} + \frac{5}{4} \text{ km}$$

Lcm of 3 and 4 = 12

$$\begin{aligned} \therefore \text{We have } \frac{7}{3} + \frac{5}{4} &= \frac{28+15}{12} = \frac{43}{12} \\ &= 3\frac{7}{12} \end{aligned}$$

Thus, Kanya walked $3\frac{7}{12}$ km on Sunday.

①

$$\text{Total weight} = 3\frac{3}{4}\text{ kg} + 2\frac{1}{2}\text{ kg} + \frac{1}{2}\text{ kg}.$$

Changing mixed fraction to improper fraction,
we have:

$$\frac{15}{4} + \frac{5}{2} + \frac{1}{2}$$

$$\text{Lcm of } 4, 2 \text{ and } 2 = 4$$

∴ we have

$$\frac{15}{4} + \frac{5}{2} + \frac{1}{2}$$

$$\Rightarrow \frac{15 + 10 + 2}{4} = \frac{27}{4} = 6\frac{3}{4}$$

Hence, Varun has to carry $6\frac{3}{4}$ kg weight to
School.

Exercise 5.7

①

$$(i) \frac{17}{24} - \frac{5}{12}$$

Lcm of 24 and 12 is 24.

∴ we have

$$\frac{17}{24} - \frac{5}{12} = \frac{17-10}{24} = \frac{7}{24}$$

$$(ii) 2\frac{1}{3} - 1\frac{4}{9}$$

Changing mixed fraction to Improper fraction,
we get:

$$\frac{7}{3} - \frac{13}{9}$$

Lcm of 3 and 9 is 9.

$$\therefore \frac{7}{3} - \frac{13}{9} = \frac{21-13}{9} = \frac{8}{9}$$

$$(iii) 1\frac{2}{3} - \frac{5}{6}$$

Changing mixed fraction to improper fraction,
we have

$$\frac{5}{3} - \frac{5}{6}$$

Lcm of 3 and 6 is 6.

$$\therefore \frac{5}{3} - \frac{5}{6} = \frac{10-5}{6} = \frac{5}{6}$$

$$(iv) 8\frac{1}{4} - \frac{7}{8}$$

Changing mixed fraction to improper fraction,
we have:

$$\frac{33}{4} - \frac{7}{8}$$

Lcm of 4 and 8 is 8.

$$\therefore \frac{33}{4} - \frac{7}{8} = \frac{66-7}{8} = \frac{59}{8} = 7\frac{3}{8}$$

$$(v) 5\frac{7}{10} - 2\frac{1}{20}$$

Changing mixed fraction to improper fraction
we have:

$$\frac{57}{10} - \frac{41}{20}$$

LCM of 10 and 20 is 20.

$$\therefore \frac{57}{10} - \frac{41}{20} = \frac{114-41}{20} = \frac{73}{20} = 3\frac{13}{20}$$

$$(vi) 4\frac{5}{8} - 2\frac{7}{12}$$

Changing mixed fraction to improper fraction,
we get:

$$\frac{37}{8} - \frac{31}{12}$$

LCM of 8 and 12 is 24.

$$\therefore \frac{37}{8} - \frac{31}{12} = \frac{111-62}{24} = \frac{49}{24} = 2\frac{1}{24}$$

$$(vii) 10\frac{1}{5} - 1\frac{4}{15}$$

Changing mixed fraction to improper fraction,
we get:

$$\frac{51}{5} - \frac{19}{15}$$

LCM of 5 and 15 is 15.

$$\therefore \frac{51}{5} - \frac{19}{15} = \frac{153 - 19}{15} = \frac{134}{15} = 8\frac{14}{15}$$

$$(viii) 15\frac{5}{12} - 10\frac{5}{6}$$

Changing mixed fraction to improper fraction,
we get:

$$\frac{185}{12} - \frac{65}{6}$$

LCM of 12 and 6 is 12.

$$\therefore \frac{185}{12} - \frac{65}{6} = \frac{185 - 130}{12} = \frac{55}{12} = 4\frac{7}{12}$$

(2)

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

$$\Rightarrow \frac{3}{1} + \frac{1}{2} - \frac{1}{4}$$

$$\Rightarrow \frac{7}{2} - \frac{1}{4}$$

$$\Rightarrow \frac{14 - 1}{4} = \frac{13}{4} = 3\frac{1}{4}$$

[Operating A]

[Operating S]

\Rightarrow

(5)

5/40

$$(ii) 2\frac{3}{4} - 1\frac{1}{3} + 2\frac{1}{6}$$

Changing mixed fraction to improper fraction,
we get.

$$\frac{11}{4} - \frac{4}{3} + \frac{13}{6}$$

$$\Rightarrow \frac{11}{4} + \frac{13}{6} - \frac{4}{3} \quad [\text{Rearranging terms}]$$

$$\Rightarrow \frac{59}{12} - \frac{4}{3} \quad [\text{operating A}]$$

$$\Rightarrow \frac{59-16}{12} = \frac{43}{12} \quad [\text{operating S}]$$

$$\Rightarrow = 3\frac{7}{12}$$

$$(iii) 6\frac{1}{2} - 5\frac{7}{8} + 2\frac{7}{10}$$

Changing mixed fraction to improper fraction,
we get.

$$\frac{13}{2} - \frac{47}{8} + \frac{27}{10}$$

$$\Rightarrow \frac{13}{2} + \frac{27}{10} - \frac{47}{8} \quad [\text{Rearranging terms}]$$

$$\Rightarrow \frac{92}{10} - \frac{47}{8}$$

[operating A]

$$\Rightarrow \frac{368 - 235}{40}$$

[operating S]

$$\Rightarrow \frac{133}{40} = 3\frac{13}{40}$$

$$(iv) 5\frac{4}{9} - 1\frac{1}{6} + \frac{2}{3}$$

Changing mixed fraction to improper fraction,
we get:

$$\frac{49}{9} - \frac{7}{6} + \frac{2}{3}$$

$$\Rightarrow \frac{49}{9} + \frac{2}{3} - \frac{7}{6}$$

[Rearranging terms]

$$\Rightarrow \frac{55}{9} - \frac{7}{6}$$

[operating A]

\Rightarrow LCM of 9 and 6 is 18.

$$\Rightarrow \frac{110 - 21}{18}$$

[operating S]

$$\Rightarrow \frac{89}{18} = 4\frac{17}{18}$$

$$(v) 7\frac{3}{7} + \frac{5}{14} - \frac{17}{28}$$

Changing mixed fraction to improper fraction,
we get:

$$\frac{52}{7} + \frac{5}{14} - \frac{17}{28}$$

$$\Rightarrow \frac{104 + 5}{14} - \frac{17}{28}$$

[Operating A]

$$\Rightarrow \frac{109}{14} - \frac{17}{28}$$

$$\Rightarrow \frac{218 - 17}{28}$$

[Operating S]

$$\Rightarrow \frac{201}{28} = 7\frac{5}{28}$$

$$(vii) \frac{24}{25} - \frac{2}{5} + 2\frac{1}{20}$$

Changing mixed fraction to improper fraction,
we get:

$$\frac{24}{25} - \frac{2}{5} + \frac{41}{20}$$

$$\Rightarrow \frac{24}{25} + \frac{41}{20} - \frac{2}{5}$$

[Rearranging terms]

$$\Rightarrow \frac{96 + 205}{100} - \frac{2}{5} \quad [\text{operating A}]$$

$$\Rightarrow \frac{301}{100} - \frac{2}{5}$$

$$\Rightarrow \frac{301 - 40}{100} \quad [\text{operating S}]$$

$$\Rightarrow \frac{261}{100} = 2\frac{61}{100}$$

③ Let the required number be x .

$$\therefore \frac{4}{15} + x = \frac{3}{5}$$

$$\Rightarrow x = \frac{3}{5} - \frac{4}{15} = \frac{9 - 4}{15} = \frac{5}{15} = \frac{1}{3}$$

Thus, required number is $\frac{1}{3}$.

④ The other number = $\left| \frac{7}{10} - \frac{11}{15} \right|$

$$= \frac{17}{10} - \frac{11}{15}$$

$$= \frac{51 - 22}{30} = \frac{29}{30}$$

(5)

Money spent in the market = ₹ $15\frac{7}{10}$ - ₹ $1\frac{1}{2}$

$$= ₹ \left(\frac{157}{10} - \frac{3}{2} \right)$$

$$= ₹ \left(\frac{157 - 15}{10} \right)$$

$$= ₹ \frac{142}{10} = ₹ \frac{71}{5}$$

$$= ₹ 14\frac{1}{5}$$

Thus, Balaji spent ₹ $14\frac{1}{5}$ in the market.

(6)

Total distance covered by Nafisa to meet

$$\text{Lijata} = 2\frac{3}{5} \text{ km} + \frac{3}{8} \text{ km} + 1\frac{1}{2} \text{ km}$$

$$= \left(\frac{13}{5} + \frac{3}{8} + \frac{3}{2} \right) \text{ km}$$

=

$$\left(\frac{104 + 15 + 60}{40} \right) \text{ km}$$

$$= \left(\frac{179}{40} \right) \text{ km} = 4\frac{19}{40} \text{ km}$$

⑦

- Measure of cloth left for table cover =

$$(6\frac{1}{4} + 5\frac{2}{5})\text{m} - 8\frac{1}{6}\text{m}$$

Changing mixed fraction to improper fraction,
we have:

$$\frac{25}{4} + \frac{27}{5} - \frac{49}{6}$$

$$\Rightarrow \frac{125 + 108}{20} - \frac{49}{6} \quad [\text{operating A}]$$

$$\Rightarrow \frac{233}{20} - \frac{49}{6}$$

$$\Rightarrow \frac{699 - 490}{60} \quad [\text{operating S}]$$

$$\Rightarrow \frac{209}{60} = 3\frac{29}{60}\text{m}$$

Thus, $3\frac{29}{60}$ m cloth is left for table cover.

⑧ Difference of $1\frac{17}{24}$ and $1\frac{3}{8}$

$$\Rightarrow 1\frac{17}{24} - 1\frac{3}{8}$$

Changing mixed fraction to improper fraction;
we have:

$$\Rightarrow \frac{41}{24} - \frac{11}{8}$$

$$\Rightarrow \frac{41-33}{24} = \frac{8}{24} = \frac{1}{3}$$

Now we need to add $\frac{1}{3}$ to $\frac{5}{12}$.

$$\therefore \frac{1}{3} + \frac{5}{12}$$
$$\frac{4+5}{12} = \frac{9}{12} = \frac{3}{4}$$

Thus, the answer is $\frac{3}{4}$.

⑨ Let the total amount of money in the bag be ₹x.

According to question,

$$\frac{1}{2}x + \frac{1}{4}x + \frac{1}{8}x + \frac{1}{16}x + ₹125 = ₹x$$

$$\Rightarrow \left(\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} \right)x + 125 = x$$

$$\Rightarrow \left(\frac{8+4+2+1}{16} \right)x + 125 = x$$

$$\Rightarrow \frac{15x}{16} + 125 = x$$

$$\Rightarrow x - \frac{15x}{16} = 125$$

$$\Rightarrow \frac{16x - 15x}{16} = 125$$

\Rightarrow cross multiply

$$x = 125 \times 16 = 2000.$$

Hence, total money in the bag was ₹2000.

(10) milk sold in 4 days = $(12\frac{1}{2} + 10\frac{3}{4} + 11\frac{1}{4} + 15\frac{5}{8})$ litres

Changing mixed fraction to improper fraction, we have:

$$\frac{25}{2} + \frac{43}{4} + \frac{45}{4} + \frac{125}{8} = \frac{100 + 86 + 90 + 125}{8} = \frac{401}{8} = 50\frac{1}{8}$$

Hence, milkman sold $50\frac{1}{8}$ litres milk in 4 days.

(11)

Total quantity of vegetables =

$$\left(15 + 11\frac{1}{2} + 13\frac{3}{4} + 12\frac{7}{8} + 2\frac{1}{2}\right) \text{kg.}$$

Changing mixed fraction to improper fraction,
we have.

$$\frac{15}{1} + \frac{23}{2} + \frac{55}{4} + \frac{103}{8} + \frac{5}{2}$$

$$\frac{120 + 92 + 110 + 103 + 20}{8} = \frac{445}{8}$$

$$\begin{aligned} \text{quantity of unsold vegetables} &= 5\frac{5}{8} \text{ kg} \\ &= \frac{45}{8} \text{ kg.} \end{aligned}$$

∴ Quantity of vegetables vegetable seller had.

$$\text{sold during the daytime} = \left(\frac{445}{8} - \frac{45}{8}\right) \text{kg.}$$

$$= \frac{400}{8} \text{ kg.} = 50 \text{ kg.}$$

(11)

Total quantity of vegetables =

$$\left(15 + 11\frac{1}{2} + 13\frac{3}{4} + 12\frac{7}{8} + 2\frac{1}{2}\right) \text{kg.}$$

Changing mixed fraction to improper frac
we have.

$$\frac{15}{1} + \frac{23}{2} + \frac{55}{4} + \frac{103}{8} + \frac{5}{2}$$

$$\frac{120 + 92 + 110 + 103 + 20}{8} = \frac{445}{8}$$



$$\begin{aligned} \text{quantity of unsold vegetables} &= 5\frac{5}{8} \text{ kg} \\ &= \frac{45}{8} \text{ kg.} \end{aligned}$$

∴ Quantity of vegetables vegetable seller had.

$$\text{sold during the daytime} = \left(\frac{445}{8} - \frac{45}{8}\right) \text{kg.}$$

$$= \frac{400}{8} \text{ kg.} = 50 \text{ kg.}$$

(12)

Total length of used ribbon = $(2\frac{3}{4} + 3\frac{1}{2} + 8\frac{1}{3})$ m

$$\Rightarrow \left(\frac{11}{4} + \frac{7}{2} + \frac{25}{3}\right) \text{ m}$$

$$\Rightarrow \frac{33 + 42 + 100}{12} \text{ m}$$

$$\Rightarrow \frac{175}{12} \text{ m} = 14\frac{7}{12} \text{ m.}$$

(13)

Left over portion from chocolate cake

$$= \frac{8}{8} - \frac{5}{8} = \frac{3}{8}$$

Left over portion from vanilla cake

$$= \frac{6}{6} - \frac{3}{6} = \frac{3}{6} = \frac{1}{2}$$

Required fraction of two left over cakes

$$= \frac{3}{8} + \frac{1}{2} = \frac{3+4}{8} = \frac{7}{8}$$

Multiple choice Questions:

1. (d)

Explanation: $1 \text{ m} = 100 \text{ cm}$

$$40 \text{ cm of } 100 \text{ cm} = \frac{40}{100}$$

2. (b)

Explanation: A fraction whose numerator is less than its denominator is called a proper fraction.

3. (a)

Explanation: All proper fraction are less than 1.

4. (b)

Explanation:

$$\frac{16}{18} = \frac{8}{9} \quad \text{and} \quad \frac{40}{45} = \frac{8}{9}$$

Thus, The fraction equivalent to $\frac{16}{18}$ with the denominator as 45 is $\frac{40}{45}$.

5. (c)

Explanation: $\frac{24}{42} \div \frac{6}{6} = \frac{4}{7}$

6. (a)

Explanation:

$$\frac{4}{7}, \frac{4}{9} \text{ and } \frac{4}{11}$$

The fraction with smaller denominator is greater.

Thus, $\frac{4}{7}$ is the greatest fraction.

7. (d)

Explanation: $\frac{1}{2} + \frac{1}{4} + \frac{1}{8}$

LCM of 2, 4 and 8 = 8

$$\therefore \frac{1}{2} + \frac{1}{4} + \frac{1}{8}$$

$$\frac{4 + 2 + 1}{8} = \frac{7}{8}$$

8. (a)

Explanation:

$$2\frac{1}{5} - \frac{3}{10}$$

Changing mixed fraction to improper fraction we have:

$$\frac{11}{5} - \frac{3}{10}$$

$$\Rightarrow \frac{22-3}{10} = \frac{19}{10} = 1\frac{9}{10}$$

9. (c)

Explanation: $4 - \frac{5}{8}$

$$\Rightarrow \frac{32-5}{8} = \frac{27}{8} = 3\frac{3}{8}$$

10. (d)

Explanation: $\frac{35}{4} = 8\frac{3}{4}$

Value Based Questions:

①

$$\begin{aligned} \text{(a) Pages read on Wednesday} &= 136 - (52 + 72) \\ &= 136 - 124 \\ &= 12 \end{aligned}$$

$$\begin{aligned} \text{Fraction of the book reads on Monday} &= \frac{52}{136} \\ &= \frac{13}{34} \end{aligned}$$

$$\begin{aligned} \text{Fraction of the book reads on Tuesday} \\ &= \frac{72}{136} = \frac{18}{34} \end{aligned}$$

$$\begin{aligned} \text{Fraction of the book reads on Wednesday} &= \\ &= \frac{12}{136} = \frac{3}{34} \end{aligned}$$

(b) When denominators are same, the fraction with the greater numerator is greater.

Thus, from the fractions, $\frac{13}{34}$, $\frac{18}{34}$, $\frac{3}{34}$

$\frac{18}{34}$ is ^{the} greatest fraction.

Hence, on Wednesday Kavita read the greatest part of the book.

(2)

(a)

From the fraction, $\frac{2}{5}$, $\frac{1}{4}$ and $\frac{3}{10}$.

LCM of 5, 4 and 10 = 20

$$\therefore \frac{2}{5} \times \frac{4}{4}, \frac{1}{4} \times \frac{5}{5} \text{ and } \frac{3}{10} \times \frac{2}{2}$$

$$\frac{8}{20}, \frac{5}{20} \text{ and } \frac{6}{20}$$

Here $\frac{8}{20}$ is the greatest fraction.

Thus, Babulal painted the greatest portion of the wall.

(b) Stryamlal painted the least portion of the wall.

(c) portion of wall which was unpainted

$$= \left[1 - \left(\frac{2}{5} + \frac{1}{4} + \frac{3}{10} \right) \right]$$

$$= 1 - \frac{19}{20} = \frac{1}{20}$$

(5)

Mental Maths:

Fill in the blanks:

1) There are 8 eights in a whole.

4) Which is greater $\frac{8}{11}$ or $\frac{8}{9}$? $\frac{8}{9}$

Explanation:

Because, in two fraction with the same numerator, the fraction with the small denominator is greater.

3) An equivalent fraction of $\frac{36}{96}$ with numerator as 21 is $\frac{21}{56}$.

Explanation: $\frac{36}{96} = \frac{36 \div 6}{96 \div 6} = \frac{6}{16} = \frac{3}{8}$

Now, $\frac{3}{8} \times \frac{7}{7} = \frac{21}{56}$.

4) The simplest form of $\frac{57}{152}$ is $\frac{3}{8}$.

Explanation:

$$\frac{57}{152} \div \frac{19}{19} = \frac{3}{8}$$

5

Is $\frac{81}{64}$ in its simplest form? Yes.

Explanation: It is already in the simplest form. It can be written as $1\frac{17}{64}$ as a mixed fraction and 1.265625 in decimal form.

6) The value of $2 - (\frac{1}{4} + \frac{1}{2} + \frac{1}{4})$ is 1.

Explanation:

$$2 - (\frac{1}{4} + \frac{1}{2} + \frac{1}{4})$$

$$\Rightarrow 2 - 1 = 1$$

7) The smallest fraction among $1\frac{5}{8}$, $\frac{13}{14}$

and $\frac{13}{15}$ is $\frac{13}{15}$.

Explanation:

$$1\frac{5}{8}, \frac{13}{14}, \frac{13}{15}$$

Changing mixed fraction to improper fraction, we get:

$$\frac{13}{8}, \frac{13}{14}, \frac{13}{15}$$

When numerators are same, the fraction with greater denominator will be smaller.

Thus, out of $\frac{13}{8}$, $\frac{13}{14}$ and $\frac{13}{15}$, $\frac{13}{15}$ is the smallest fraction.

⑧ The value of $10 - \frac{1}{5}$ is $9\frac{4}{5}$.

Explanation:

$$\begin{aligned} & 10 - \frac{1}{5} \\ \Rightarrow & \frac{50 - 1}{5} = \frac{49}{5} = 9\frac{4}{5}. \end{aligned}$$

⑨ The value of $2\frac{1}{4} - 1\frac{1}{4} + 1$ is 2.

Explanation:

Changing mixed fraction to improper fraction

we have: $\frac{9}{4} - \frac{5}{4} + 1$

$$\Rightarrow \frac{9 - 5 + 4}{4} = \frac{13 - 5}{4} = \frac{8}{4} = 2$$

⑩ $\frac{2}{11} + \frac{4}{11} + \frac{5}{11}$ is equal to 1.

Explanation: $\frac{2}{11} + \frac{4}{11} + \frac{5}{11} = \frac{2+4+5}{11} = \frac{11}{11} = 1$