$\frac{7}{2} = \frac{7 \times 2}{2 \times 2} = \frac{14}{4}$

$\frac{5}{2} = \frac{5 \times 2}{2 \times 2} = \frac{10}{4}$

$\therefore$ $\frac{10}{4}$ and $\frac{14}{4}$ are less than $\frac{35}{4}$

$\therefore$ both $\frac{7}{2}$ and $\frac{5}{2}$ are less than $\frac{35}{4}$

$\therefore$ product of two improper fractions is greater than both the improper fractions.

6. Number $\times$ Reciprocal of Number

$= \text{Number} \times \frac{1}{\text{Number}}$

$= 1$ ✓

7. Number > 1

$\therefore \frac{\text{Number}}{\text{Number}} > \frac{1}{\text{Number}}$

$\therefore 1 >$ Reciprocal of Number

$\therefore$ Reciprocal of Number < 1 ✓

8. Multiplicative inverse of $\frac{3}{5} = \frac{5}{3} = 1\frac{2}{3}$

9. $\frac{15}{16} \times \_\_\_ = 1$

$\therefore \_\_\_ = 1 \div \frac{15}{16} = 1 \times \frac{16}{15} = \frac{16}{15}$

10. $1 \div \_\_\_ = 1\frac{2}{3}$

$\therefore 1 = 1\frac{2}{3} \times \_\_\_$

$1 = \frac{5}{3} \times \_\_\_$

$\therefore \_\_\_ = 1 \div \frac{5}{3} = 1 \times \frac{3}{5}$

$= \frac{3}{5}$ ✓

$\_\_\_ \times \_\_\_$

$= \frac{\text{Novel}}{2}$

b) part of Novel left to read $= \text{Novel} - \frac{\text{Novel}}{2}$

$= \frac{2\,\text{Novel} - \text{Novel}}{2}$

$= \frac{\text{Novel}}{2}$.

But No. of pages left $= 100$ (given)

$\therefore \frac{\text{Novel}}{2} = 100$

$\therefore$ Novel $= 2 \times 100 = 200$.

$\therefore$ there are 200 pages in the book.

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c) using time increase her knowledge. she has reading habit.

MENTAL MATHS

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

$= \frac{(1\times3)+(1\times2)-5}{6}$

$= \frac{3+2-5}{6} = \frac{5-5}{6} = 0$

2. $2\frac{3}{5} - 1 = \frac{13}{5} - 1 = \frac{13-5}{5} = \frac{8}{5} = 1\frac{3}{5}$

3. $\frac{1}{a} \times \frac{1}{b} = \frac{1\times1}{a\times b} = \frac{1}{ab}$

4. $\frac{1}{x}$ of $\frac{1}{y} = \frac{1}{x} \times \frac{1}{y} = \frac{1}{xy}$

5. $\frac{7}{2} \times \frac{5}{2} = \frac{7\times5}{2\times2} = \frac{35}{4}$

$\frac{7}{2} = \frac{7\times2}{2\times2} = \frac{14}{4}$

$\frac{5}{2} = \frac{5\times2}{2\times2} = \frac{10}{4}$

$\therefore$ $\frac{10}{4}$ and $\frac{14}{4}$ are less than $\frac{35}{4}$

$\therefore$ both $\frac{7}{2}$ and $\frac{5}{2}$ are less than $\frac{35}{4}$

$\therefore$ product of two improper fraction is greater than both the improper fractions.

$\frac{1}{3} = \frac{1}{3} \times \frac{5}{5} = \frac{5}{15}$

$\frac{2}{5} = \frac{2}{5} \times \frac{3}{3} = \frac{6}{15}$

$\therefore \frac{6}{15} > \frac{5}{15} > \frac{4}{15}$

$\therefore \frac{2}{5} > \frac{1}{3} > \frac{4}{15}$

∴ Maximum part of work done by Gautam. i.e $\frac{2}{5}$.

d, Gautam and Manish show the nature of helping oth

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2 (a) Novel read on 1st day $= \frac{1}{4} \times$ Novel

Remaining part $= (1 - \frac{1}{4}) \times$ Novel

$= \frac{3}{4} \times$ Novel.

Part of Novel read on 2nd day

$= \frac{1}{3}$ of $\frac{3}{4} \times$ Novel

$= \frac{1}{3} \times \frac{3}{4} \times$ Novel

$= \frac{1}{4} \times$ Novel.

Part of Novel read in 2 days.

$= \frac{\text{Novel}}{4} + \frac{\text{Novel}}{4}$

$= \frac{\text{Novel} + \text{Novel}}{4}$

$= \frac{2 \text{ Novel}}{4_2}$

$= \frac{\text{Novel}}{2}$

(b) Part of Novel left to read = Novel − $\frac{\text{Novel}}{2}$

$= \frac{2\,\text{Novel} - \text{Novel}}{2}$

$= \frac{\text{Novel}}{2}$.

But No. of pages left = 100 (given)

$\therefore \frac{\text{Novel}}{2} = 100$

$\therefore$ Novel $= 2 \times 100 = 200$.

∴ there are 200 pages in the book.

7. Reciprocal of $1 = \frac{1}{1} = 1$

∴ Answer = (a) ✓

8. $1 \div \frac{5}{16} = 1 \times \frac{16}{5} = \frac{16}{5}$

∴ Answer = (b) ✓

9. $\frac{1}{2} \div 8 = \frac{1}{2} \times \frac{1}{8} = \frac{1}{16}$

∴ Answer = (c) ✓

10. $\left(5 \div \frac{3}{10}\right) \times \frac{9}{25} = \left(5 \times \frac{10}{3}\right) \times \frac{9}{25} = \frac{\overset{2}{\cancel{50}}}{\underset{1}{\cancel{3}}} \times \frac{\overset{3}{\cancel{9}}}{\underset{5}{\cancel{25}}} =$

∴ Answer = (a) ✓

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Value Based Questions.

1) (a) part of work done by Kishan and Gautam

$= \frac{1}{3} + \frac{2}{5}$

$= \frac{(1 \times 5) + (2 \times 3)}{15}$

$= \frac{5+6}{15} = \frac{11}{15}$

(b) part of work done by manish

$= 1 - \frac{11}{15}$

$= \frac{(1 \times 15) - 11}{15} = \frac{15-11}{15}$

$= \frac{4}{15}$

(c) Compare $\frac{1}{3}, \frac{2}{5}, \frac{4}{15}$

LCM of 3, 5 and 15 = 15

Common denominator = 15

$\frac{1}{3} = \frac{1}{3} \times \frac{5}{5} = \frac{5}{15}$

$\frac{2}{5} = \frac{2}{5} \times \frac{3}{3} = \frac{6}{15}$

$\therefore \frac{6}{15} > \frac{5}{15} > \frac{4}{15}$

$\therefore \frac{2}{5} > \frac{1}{3} > \frac{4}{15}$

∴ maximum part of work done by Gautam. i.e $\frac{2}{5}$.

(d) Gautam and Manish show the nature of helping others in need

53

2 (a) Novel read on 1st day $= \frac{1}{4} \times$ Novel

1. $\frac{1}{3}$ of 3 $= \frac{1}{\cancel{3}_1} \times \cancel{3}^1 = 1$ ∴ Ans is (a) ✓

2. $\frac{1}{4}$ of $\frac{1}{4} = \frac{1}{4} \times \frac{1}{4} = \frac{1}{16}$ ∴ Answer is (c) ✓

3. $\frac{\cancel{8}^1}{\cancel{27}_3} \times \frac{\cancel{9}^1}{\cancel{16}_2} = \frac{1}{3 \times 2} = \frac{1}{6}$ ∴ Answer is (c) ✓

4. $\frac{5}{7}$ of Number $= 300$

$\therefore \frac{5}{7} \times$ Number $= 300$

Number $= 300 \div \frac{5}{7}$

$= \cancel{300}^{60} \times \frac{7}{\cancel{5}_1}$

$= 420$

∴ Answer is (b) ✓

5. 1 period $= \frac{5}{6}$ hour.

∴ 6 periods $= 6 \times \frac{5}{6}$ hours.

$= 5$ hours.

Answer is (a) ✓

6. Reciprocal of $\frac{5}{4} \times \frac{8}{15} =$

$= \frac{\cancel{4}^1 \times \cancel{15}^3}{\cancel{5}_1 \times \cancel{8}_2} = \frac{3}{2}$

∴ Answer = (c)

7. Reciprocal of $1 = \frac{1}{1} = 1$

∴ Answer = (a) ✓

8. $1 \div \frac{5}{16} = 1 \times \frac{16}{5} = \frac{16}{5}$

∴ Answer = (b) ✓

9. $\frac{1}{2} \div 8 = \frac{1}{2} \times \frac{1}{8} = \frac{1}{16}$

∴ Answer = (c) ✓

10. $\left(5 \div \frac{3}{10}\right) \times \frac{9}{25} = \left(5 \times \frac{10}{3}\right) \times \frac{9}{25} = \frac{\cancel{50}^2}{\cancel{3}} \times \frac{\cancel{9}^3}{\cancel{25}} =$

∴ Answer = (a) ✓

Value Based Questions.

(a) part of work done by Kishan and Gautam

after the sale.

Portion given to his Son = $\frac{1}{2}$ of $\frac{1}{2}$ × Land

$= \frac{1}{2} \times \frac{1}{2} \times$ Land

$= \frac{1}{4} \times$ Land.

Balance Land with the man = $\frac{\text{Land}}{2} - \frac{\text{Land}}{4}$

$= \frac{2\text{Land} - \text{Land}}{4}$

$= \frac{\text{Land}}{4}$

Land given to daughter = $\frac{1}{3}$ of Balance Land.

$= \frac{1}{3} \times \frac{\text{Land}}{4}$

$= \frac{\text{Land}}{12}$

Fraction of Land left with the man

= Balance − $\frac{\text{Land}}{12}$

$= \frac{\text{Land}}{4} - \frac{\text{Land}}{12}$

$= \frac{3\text{Land} - \text{Land}}{12}$

$= \frac{2\text{Land}}{12_6}$

$= \frac{1}{6}$ of Land.

∴ Fraction of Land left with the man

$= \frac{1}{6}$. ✓

Multiple choice questions

1. $\frac{1}{3}$ of 3 = $\frac{1}{\cancel{3}_1} \times \cancel{3}^1 = 1$ ∴ Ans is (a) ✓

2. $\frac{1}{4}$ of $\frac{1}{4} = \frac{1}{4} \times \frac{1}{4} = \frac{1}{16}$ ∴ Answer is (c)

3. $\frac{\cancel{8}^1}{\cancel{27}_3} \times \frac{\cancel{9}^1}{\cancel{16}_2} = \frac{1}{3 \times 2} = \frac{1}{6}$ ∴ Answer is (c)

4. $\frac{5}{7}$ of Number = 300

Cloth used for 1 cushion = $2\frac{1}{2}$ m $\div$ 25

$= \frac{5}{2}$ m $\div$ 25

$= \frac{11}{2} \times \frac{1}{25}$ m

$= \frac{11}{10}$ m

$= 1\frac{1}{10}$ m ✓

6. Time required for reading 80 pages of book $= \frac{2}{3}$ of hour.

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$\therefore$ Time required for reading 1 page $= \frac{2}{3}$ hours $\div$ 80

$= \frac{2}{3} \times \frac{1}{80}$ hour.

$= \frac{1}{120}$ hour.

$\therefore$ Time needed for reading 840 pages

$= \frac{1}{120}$ hour $\times$ 840

$= \frac{1}{120} \times 840$ hours.

$= 7$ hours. ✓

$\therefore$ Shashank can complete reading the Book in 7 hours.

7.

Land Remaining with a man after the sale $= \frac{1}{2} \times$ Land.

Portion given to his Son $= \frac{1}{2}$ of $\frac{1}{2} \times$ Land

$= \frac{1}{2} \times \frac{1}{2} \times$ Land

$= \frac{1}{4} \times$ Land.

Balance Land with the man $= \frac{\text{Land}}{2} - \frac{\text{Land}}{4}$

$= \frac{2\text{Land} - \text{Land}}{4}$

$= \frac{\text{Land}}{4}$

$= \frac{295}{2}$ m

$= 147\frac{1}{2}$ m. ✓

5. (a) Total length of cloth weaver has $= 82\frac{1}{2}$ m

Cloth required for 1 curtain $= 2\frac{3}{4}$ m.

cloth used for curtains $= \frac{2}{3}$ of $82\frac{1}{2}$ m

$= \frac{2}{3} \times \frac{165}{2}$ m

$= 55$ m.

∴ No. of curtains stitched $= 55$ m $\div 2\frac{3}{4}$ m

$= 55$ m $\div \frac{11}{4}$ m

$= 55 \times \frac{4}{11}$

$= 20$ ✓

(b) Remaining cloth $= 82\frac{1}{2}$ m $- 55$ m

$= 27\frac{1}{2}$ m.

No. of cushion covers stitched $= 25$

∴ cloth used for 1 cushion $= 27\frac{1}{2}$ m $\div 25$

$= \frac{55}{2}$ m $\div 25$

$= \frac{55}{2} \times \frac{1}{25}$ m

$= \frac{11}{10}$ m

$= 1\frac{1}{10}$ m ✓

6. Time required for reading 80 pages of book

$= \frac{2}{3}$ of hour.

4. No. of Students = 50

No. of Girls = $\frac{3}{5} \times 50^{10} = 30$

∴ No. of Boys = 50 − 30 = 20

Ribbon Brought by each girl = $2\frac{3}{4}$ m

∴ Ribbon collected by all girls = $2\frac{3}{4}$ m × 30

$= \frac{11}{4_2} \times 30^{15}$ m

$= \frac{11 \times 15}{2}$ m

$= \frac{165}{2}$ m

Ribbon brought by each boy = $3\frac{1}{4}$ m

∴ Ribbon collected by all boys = $3\frac{1}{4}$ m × 20

$= \frac{13}{4_1} \times 20^{5}$ m

$= 65$ m

∴ Ribbon collected by all students

$= \frac{165}{2}$ m + 65 m

$= \frac{165 + (2 \times 65)}{2}$ m

$= \frac{165 + 130}{2}$ m

$= \frac{295}{2}$ m

$= 147\frac{1}{2}$ m.

5. (a) Total length of cloth Weaver has = $82\frac{1}{2}$ m

Cloth required for 1 curtain = $2\frac{3}{4}$ m.

cloth used for curtains = $\frac{2}{3}$ of $82\frac{1}{2}$ m

$= \frac{2}{3_1} \times \frac{165}{2_1}$ m

$$= \left(\frac{(27\times3)+(31\times2)}{12}\right) \div \left(\frac{55}{48}\right)$$

$$= \frac{81+62}{12} \times \frac{48}{55}$$

$$= \frac{143}{12} \times \frac{48}{55} = \frac{13\times4}{1\times5} = \frac{52}{5}$$

$$= 10\frac{2}{5}$$ ✓

LCM

2 | 4, 6

2 | 2, 3

3 | 1, 3

1, 1

∴ LCM of 4 and 6 = 2 × 2 × 3 = 12

3.

Number of stamps with Divya = 180

Stamps given to Tara = $\frac{1}{5} \times 180 = 36$

Stamps given to Mala = $\frac{1}{3} \times 36 = 12$ ✓

Stamps left with Tara = 36 − 12 = 24 ✓

Stamps left with Divya = 180 − 36 = 144 ✓

4. No. of Students = 50

No. of Girls = $\frac{3}{5} \times 50 = 30$

∴ No. of Boys = 50 − 30 = 20

Ribbon Brought by each girl = $2\frac{3}{4}$ m

∴ Ribbon collected by all girls = $2\frac{3}{4}$ m × 30

$$= \frac{11}{4} \times 30 \text{ m}$$

$$= \frac{11\times15}{2} \text{ m}$$

$$= \frac{165}{2} \text{ m}$$

Ribbon brought by each boy = $3\frac{1}{4}$ m

∴ Ribbon collected by all boys = $3\frac{1}{4}$ m × 20

$$= \frac{13}{4} \times 20 \text{ m}$$

viii, $\frac{8}{7} - \left[\frac{1}{5} \text{ of } 3\frac{4}{7}\right]$

$= \frac{8}{7} - \left[\frac{1}{5_1} \times \frac{25^5}{7}\right]$

$= \frac{8}{7} - \frac{5}{7}$

$= \quad = \frac{3}{7}$

ix, $\left(\frac{9}{29} \times \frac{1}{12}\right) \times \left(6 - \frac{1}{5}\right) \times \left(\frac{1}{4} \times \frac{1}{5}\right)$

$= \frac{^3\cancel{9} \times 1}{29 \times \cancel{12}_4} \times \left(\frac{(6\times5)-1}{5}\right) \times \frac{1}{20}$

$= \frac{3}{29\times4} \times \left(\frac{30-1}{5}\right) \times \frac{1}{20}$

$= \frac{3}{29\times4} \times \frac{29}{5} \times \frac{1}{20}$

$= \frac{3 \times \cancel{29}^1 \times 1}{\cancel{29}_1 \times 4 \times 5 \times 20}$

$= \frac{3}{20\times20}$

$= \frac{3}{400}$ ✓

x, $\left(6\frac{3}{4} + 5\frac{1}{6}\right) \div \left(\frac{11}{12} \times 3\frac{3}{4} \times \frac{1}{3}\right)$

$= \left(\frac{27}{4} + \frac{31}{6}\right) \div \left(\frac{11}{12} \times \frac{15^5}{4} \times \frac{1}{3_1}\right)$

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$= \left(\frac{(27\times3) + (31\times2)}{12}\right) \div \left(\frac{55}{48}\right)$

LCM
2|4,6
2|2,3

$= \frac{22 \times 7}{3} - \frac{1}{5}$

$= \frac{154}{3} - \frac{1}{5}$

$= \frac{(154 \times 5) - (3 \times 1)}{15}$

$= \frac{770 - 3}{15}$

$= \frac{767}{15}$

$= 51\frac{2}{15}$ ✓

(v) $\frac{13}{12} \times 4\frac{4}{5} \div \frac{13}{25}$ 44

$= \left(\frac{13}{12} \times \frac{24}{5}\right) \div \frac{13}{25}$

$= \frac{13 \times 2}{5} \times \frac{25}{13}$

$= \frac{2}{1} \times \frac{5}{1}$

$= 10.$ ✓

(vi) $\left[5\frac{1}{2} \times 10\frac{1}{2}\right]$ of $\frac{16}{55}$

$= \frac{11}{2} \times \frac{21}{2} \times \frac{16}{55}$

$= \frac{1 \times 21 \times 8}{1 \times 1 \times 5}$

$= \frac{21 \times 4}{5} = \frac{84}{5} = 16\frac{4}{5}$ ✓

(vii) $\left[1\frac{7}{5} \times 15\frac{1}{2}\right]$ of $\left[\frac{2}{5} \div 4\right]$

$= \left[\frac{12}{5} \times \frac{76}{5}\right] \times \left[\frac{2}{5} \times \frac{1}{4}\right]$

$= \frac{12}{5} \times \frac{76}{5} \times \frac{1}{5} \times \frac{1}{2}$

$= \frac{6 \times 76}{5 \times 5 \times 5}$

$= \frac{456}{125} = 3\frac{81}{125}$ ✓

(viii) $\frac{8}{7} - \left[\frac{1}{5} \text{ of } 3\frac{4}{7}\right]$ 45

(iii) $\left[4\frac{1}{55} \times \frac{5}{34}\right] \div \left[\frac{7}{8} \times \frac{5}{12}\right]$

$= \left[\frac{221}{55_{11}} \times \frac{1}{34}\right] \div \left[\frac{7 \times 5}{8 \times 12}\right]$

$= \frac{221^{13}}{11 \times 34_{17}} \times \frac{8 \times 12^{6}}{7 \times 5}$

$= \frac{13}{11} \times \frac{8 \times 6}{7 \times 5}$

$= \frac{624}{385} = 1\frac{239}{385}$

(iv) $\left[9\frac{3}{7} \times 5\frac{4}{9}\right] - \left[1\frac{2}{3} \div 8\frac{1}{3}\right]$

$= \left[\frac{66^{22}}{7_{1}} \times \frac{49^{7}}{9_{3}}\right] - \left[\frac{5}{3} \div \frac{25}{3}\right]$

$= \frac{22 \times 7}{3} - \left[\frac{5^{1}}{3_{1}} \times \frac{3^{1}}{25_{5}}\right]$

$= \frac{22 \times 7}{3} - \frac{1}{5}$

$= \frac{154}{3} - \frac{1}{5}$

$= \frac{(154 \times 5) - (3 \times 1)}{15}$

$= \frac{770 - 3}{15}$

$= \frac{767}{15}$

$= 51\frac{2}{15}$