Exercise 5E

Q10

Answer :

We have:

3	3,6
2	1,2
	1,1

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

$= \frac{11}{3} + \frac{11}{6} + \frac{2}{1}$ **L.C.M. of 3 and 6** $= \left(2 \times 3\right) = 6$

$= \frac{(22 + 11 + 12)}{6}$

$\{[6 \div 3 = 2, 2 \times 11 = 22], [6 \div 6 = 1, 1 \times 11 = 11]$ **and** $[6 \div 1 = 6, 6 \times 2 = 12]\}$

$= \frac{45^{15}}{6_{2}} = \frac{15}{2} = 7\frac{1}{2}$

Q11

Answer :

We have:

5	15,20
3	3,4
2	1,4
2	1,2
	1,1

$3 + 1\frac{4}{15} + 1\frac{3}{20}$

$= \frac{3}{1} + \frac{19}{15} + \frac{23}{20}$ **L.C.M. of 15 and 20** $= \left(2 \times 2 \times 3 \times 5\right) =$ 60

$= \frac{(180 + 76 + 69)}{60}$

$\{[60 \div 1 = 60, 60 \times 3 = 180], [60 \div 15 = 4, 4 \times 19 = 76]$ **and** $[60 \div 20 = 3, 3 \times 23$

$= \frac{325^{65}}{60_{12}} = \frac{65}{12} = 5\frac{5}{12}$

Q12

Answer :

We have:

3	3,4,6
2	1,4,2
2	1,2,1
	1,1,1

$3\frac{1}{3} + 4\frac{1}{4} + 6\frac{1}{6}$

$= \frac{10}{3} + \frac{17}{4} + \frac{37}{6}$ L.C.M. of 3, 4 and $6 = \left(2 \times 2 \times 3\right) = 12$

$= \frac{(40 + 51 + 74)}{12}$

{[12 ÷ 3 = 4, 4 × 10 = 40], [12 ÷ 4 = 3, 3 × 17 = 51] and [12 ÷ 6 = 2, 2 × 37 =

$= \frac{\cancel{185}^{55}}{\cancel{12}_{4}} = \frac{55}{4} = 13\frac{3}{4}$

Q13

Answer :

We have:

3	3,6,9,18
2	1,2,3,6
3	1,1,3,3
	1,1,1,1

$\frac{2}{3} + 3\frac{1}{6} + 4\frac{2}{9} + 2\frac{5}{18}$

$= \frac{2}{3} + \frac{19}{6} + \frac{38}{9} + \frac{41}{18}$ L.C.M. of 3, 6 and $9 = \left(2 \times 3 \times 3\right)$

$= 18$

$= \frac{(12 + 57 + 76 + 41)}{18}$

{[18 ÷ 3 = 6, 6 × 2 = 12], [18 ÷ 6 = 3, 3 × 19 = 57],
[18 ÷ 9 = 2, 2 × 38 = 76] and [18 ÷ 18 = 1, 1 × 41 = 41]}

$= \frac{\cancel{186}^{31}}{\cancel{18}_{3}} = \frac{31}{3} = 10\frac{1}{3}$

Q14

Answer :

We have:

3	3,4,6,12
2	1,4,2,4
2	1,2,1,2
	1,1,1,1

$2\frac{1}{3} + 1\frac{1}{4} + 2\frac{5}{6} + 3\frac{7}{12}$

$= \frac{7}{3} + \frac{5}{4} + \frac{17}{6} + \frac{43}{12}$ L.C.M. of 3, 4, 6 and 12 $= \left(2 \times 2 \times 3\right) = 12$

$= \frac{(28 + 15 + 34 + 43)}{12}$

$\{[12 \div 3 = 4, 4 \times 7 = 28], [12 \div 4 = 3, 3 \times 5 = 15],$
$[12 \div 6 = 2, 2 \times 17 = 34]$ and $[12 \div 12 = 1, 1 \times 43 = 43]\}$

$= \frac{\cancel{120}^{10}}{\cancel{12}_{1}} = 10$

Q15

Answer :

We have:

2	4,8,16
2	2,4,8
2	1,2,4
2	1,1,2
	1,1,1

$2 + \frac{3}{4} + 1\frac{5}{8} + 3\frac{7}{16}$

$= \frac{2}{1} + \frac{3}{4} + \frac{13}{8} + \frac{55}{16}$ L.C.M. of 4, 8, and 16 $= \left(2 \times 2 \times 2 \times 2\right) = 16$

$= \frac{(32 + 12 + 26 + 55)}{16}$

$\{[16 \div 1 = 16, 16 \times 2 = 32], [16 \div 4 = 4, 4 \times 3 = 12],$
$[16 \div 8 = 2, 2 \times 13 = 26]$ and $[16 \div 16 = 1, 1 \times 55 = 55]\}$

$= \frac{125}{16} = 7\frac{13}{16}$

Q16

Answer :

Total cost of both articles = Cost of pencil + Cost of eraser

Thus, we have:

$\text{Rs } 3\frac{2}{5} + \text{Rs } 2\frac{7}{10} = \frac{17}{5} + \frac{27}{10} = \frac{(34+27)}{10}$

$\left(\text{L.C.M. of } 5 \text{ and } 10 = \left(5 \times 2\right) = 10\right) = \frac{61}{10} = \text{Rs } 6\frac{1}{10}$

Hence, the total cost of both the articles is $\text{Rs } 6\frac{1}{10}$.

Q17

Answer :

Total cloth purchased by Sohini = Cloth for kurta + Cloth for pyjamas

Thus, we have:

$\left(4\frac{1}{2} + 2\frac{2}{3}\right)\text{m} = \left(\frac{9}{2} + \frac{8}{3}\right)\text{m} \quad \left(\text{L.C.M. of } 2 \text{ and } 3 = \left(2 \times 3\right) = 6\right) = \left(\frac{(27+16)}{6}\right)\text{m}$

$\{[6 \div 2 = 3, 3 \times 9 = 27] \text{ and } [6 \div 3 = 2, 2 \times 8 = 16]\} = \left(\frac{43}{6}\right)\text{m} = 7\frac{1}{6}\text{ m}$

$\therefore$ Total length of cloth purchased = $7\frac{1}{6}\ m$

Q18

Answer :

Distance from Kishan's house to school = Distance covered by him by rickshaw + Distance covered by him on foot

Thus, we have:

$\left(4\frac{3}{4} + 1\frac{1}{2}\right)\text{km}$

$= \left(\frac{19}{4} + \frac{3}{2}\right)\text{km} \quad = \left(\frac{(19+6)}{4}\right)\text{km}$

$\left(\text{L.C.M .of } 2 \text{ and } 4 = \left(2 \times 2\right) = 4\right) = \left(\frac{25}{4}\right)\text{km} = 6\frac{1}{4}\text{km}$

2	2,4
2	1,2
	1,1

Hence, the distance from Kishan's house to school is $6\frac{1}{4}$ km.

Q19

Answer :

Weight of the cylinder filled with gas = Weight of the empty cylinder + Weight of the gas inside the cylinder

Thus, we have:

$\left(16\frac{4}{5} + 14\frac{2}{3}\right)\text{kg}$

$= \left(\frac{84}{5} + \frac{44}{3}\right)\text{kg} \quad \left(\text{L.C.M. of } 5 \text{ and } 3 = \left(3 \times 5\right) = 15\right) = \left(\frac{(252+220)}{15}\right)\text{kg}$

$= \left(\frac{472}{15}\right)\text{kg} = 31\frac{7}{15}\text{ kg}$

Hence, the weight of the cylinder filled with gas is $31\frac{7}{15}$ kg.

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