



Exercise 8A

Q20

**Answer :**

$$(4x + 5) : (3x + 11) = 13 : 17$$

$$\Rightarrow \frac{4x + 5}{3x + 11} = \frac{13}{17}$$

$$\Rightarrow 68x + 85 = 39x + 143 \Rightarrow 29x = 58 \Rightarrow x = 2$$

Q21

**Answer :**

$$\frac{x}{y} = \frac{3}{4}$$

$$\Rightarrow x = \frac{3y}{4}$$

Now, we have  $(3x + 4y) : (5x + 6y)$

$$= \frac{3x + 4y}{5x + 6y} = \frac{3 \times \frac{3y}{4} + 4y}{5 \times \frac{3y}{4} + 6y}$$

$$= \frac{9y + 16y}{15y + 24y} = \frac{25y}{39y} = \frac{25}{39}$$

$$= 25 : 39$$

Q22

**Answer :**

$$\frac{x}{y} = \frac{6}{11}$$

$$\Rightarrow x = \frac{6y}{11}$$

Now, we have:

$$\begin{aligned}
& \frac{8x-3y}{3x+2y} \\
&= \frac{8 \times \frac{6y}{11} - 3y}{3 \times \frac{6y}{11} + 2y} \\
&= \frac{48y - 33y}{18y + 22y} \\
&= \frac{15y}{40y} = \frac{3}{8}
\end{aligned}$$

$$\therefore (8x - 3y) : (3x + 2y) = 3 : 8$$

Q23

**Answer :**

Suppose that the numbers are  $5x$  and  $7x$ .

The sum of the numbers is 720.

$$\text{i.e., } 5x + 7x = 720$$

$$\Rightarrow 12x = 720$$

$$\Rightarrow x = 60$$

Hence, the numbers are  $(5 \times 60 =) 300$  and  $(7 \times 60 =) 420$ .

Q24

**Answer :**

(i) The LCM of 6 and 9 is 18.

$$\begin{aligned}
\frac{5}{6} &= \frac{5 \times 3}{6 \times 3} = \frac{15}{18} \\
\frac{7}{9} &= \frac{7 \times 2}{9 \times 2} = \frac{14}{18} \quad \text{Clearly, } \frac{14}{18} < \frac{15}{18}
\end{aligned}$$

$$\therefore (7 : 9) < (5 : 6)$$

(ii) The LCM of 3 and 7 is 21.

$$\begin{aligned}
\frac{2}{3} &= \frac{2 \times 7}{3 \times 7} = \frac{14}{21} \\
\frac{4}{7} &= \frac{4 \times 3}{7 \times 3} = \frac{12}{21} \\
\text{Clearly, } \frac{12}{21} &< \frac{14}{21}
\end{aligned}$$

$$\therefore (4 : 7) < (2 : 3)$$

(iii) The LCM of 2 and 7 is 14.

$$\frac{1 \times 7}{2 \times 7} = \frac{7}{14}$$

$$\frac{4 \times 2}{7 \times 2} = \frac{8}{14}$$

Clearly,  $\frac{7}{14} < \frac{8}{14}$

$$\therefore (1 : 2) < (4 : 7)$$

(iv) The LCM of 5 and 13 is 65.

$$\frac{3}{5} = \frac{3 \times 13}{5 \times 13} = \frac{39}{65}$$

$$\frac{8}{13} = \frac{8 \times 5}{13 \times 5} = \frac{40}{65}$$

Clearly,  $\frac{39}{65} < \frac{40}{65}$

$$\therefore (3 : 5) < (8 : 13)$$

Q25

**Answer :**

(i) We have  $\frac{5}{6}$ ,  $\frac{8}{9}$  and  $\frac{11}{18}$ .

$$2 \mid 6, 9, 18$$

$$3 \mid 3, 9, 9$$

$$3 \mid 1, 3, 3$$

$$1, 1, 1$$

The LCM of 6, 9 and 18 is 18. Therefore, we have:

$$\frac{5}{6} = \frac{5 \times 3}{6 \times 3} = \frac{15}{18}$$

$$\frac{8}{9} = \frac{8 \times 2}{9 \times 2} = \frac{16}{18} \quad \frac{11}{18} = \frac{11}{18} \quad \text{Clearly, } \frac{11}{18} < \frac{15}{18} < \frac{16}{18}$$

Hence,  $(11 : 18) < (5 : 6) < (8 : 9)$

(ii) We have  $\frac{11}{14}$ ,  $\frac{17}{21}$ ,  $\frac{5}{7}$  and  $\frac{2}{3}$ .

$$2 \mid 14, 21, 7, 3$$

$$7 \mid 7, 21, 7, 3$$

$$3 \mid 1, 3, 1, 3$$

$$1, 1, 1, 1$$

The LCM of 14, 21, 7 and 3 is 42.

$$\frac{11}{14} = \frac{11 \times 3}{14 \times 3} = \frac{33}{42}$$

$$\frac{17}{21} = \frac{17 \times 2}{21 \times 2} = \frac{34}{42}$$

$$\frac{5}{7} = \frac{5 \times 6}{7 \times 6} = \frac{30}{42}$$

$$\frac{2}{3} = \frac{2 \times 14}{3 \times 14} = \frac{28}{42}$$

Clearly,  $\frac{28}{42} < \frac{30}{42} < \frac{33}{42} < \frac{34}{42}$

Hence,  $(2 : 3) < (5 : 7) < (11 : 14) < (17 : 21)$

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