Exercise 9.2

Q.1 Which ratio is larger in the following pairs?

(i) 3:4 or 9:16 (ii) 15:16 or 24:25

(iii) 4:7 or 5:8 (iv) 9:20 or 8:13

(v) 1:2 or 13:27

Solution: (i) $3:4 = \frac{3}{4}$; $9:16 = \frac{9}{16}$

Now LCM of 4 and 16 is 16

By Making the denominator of each fraction equal 16, we have

$$\frac{3}{4} \times \frac{4}{4} = \frac{12}{16} \quad \text{and} \quad \frac{9 \times 1}{16 \times 1} = \frac{9}{16}$$

since $12 > 9$

$\therefore \frac{12}{16} > \frac{9}{16}$

$\Rightarrow \frac{3}{4} > \frac{9}{16}$

(ii) $15:16 = \frac{15}{16}$ and $24:25 = \frac{24}{25}$

$\because$ LCM of 16 and 25 is 400

By Making the denominator of each fraction equals to 400, we have

$$\frac{15}{16} \times \frac{25}{25} = \frac{375}{400} \quad ; \quad \frac{24}{25} \times \frac{16}{16} = \frac{384}{400}$$

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Clearly $384 > 375$

$\Rightarrow \frac{24}{25} > \frac{15}{16}$

Hence $24:25 > 15:16$

(iii) $4:7 = \frac{4}{7}$; $5:8 = \frac{5}{8}$

$\because$ LCM $(7,8) = 56$

By Making their denominator equals to 56, we have

$\frac{4}{7} \times \frac{8}{8} = \frac{32}{56}$; $\frac{5}{8} \times \frac{7}{7} = \frac{35}{56}$

$\because 35 > 32$

$\Rightarrow \frac{5}{8} > \frac{4}{7}$

(iv) $9:20 = \frac{9}{20}$; $8:13 = \frac{8}{13}$

$\because$ LCM $(20, 13) = 260$

By Making their denominator equals to 260, we have

$\frac{9}{20} \times \frac{13}{13} = \frac{117}{260}$; $\frac{8}{13} \times \frac{20}{20} = \frac{160}{260}$

As, we know that $160 > 117$

$\Rightarrow \frac{8}{13} > \frac{9}{20}$

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(v) $1:2 = \frac{1}{2}$; $13:27 = \frac{13}{27}$

$\because$ LCM $(2, 27) = 54$

By making denominator of each fraction equals to 54, we have.

$$\frac{1}{2} \times \frac{27}{27} = \frac{27}{54} \quad ; \quad \frac{13}{27} \times \frac{2}{2} = \frac{26}{54}$$

Clearly $27 > 26$

$$\Rightarrow \frac{1}{2} > \frac{13}{27}$$

Q.2 Give two equivalent ratios of 6:8.

Solution: We have

$$\frac{6}{8} = \frac{6 \div 2}{8 \div 2} = \frac{3}{4}$$

$\Rightarrow$ 3:4 is equivalent to 6:8

Also $\frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}$

so, 9:12 is equivalent to 6:8

$\Rightarrow$ 3:4 and 9:12 are equivalent ratios to 6:8

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Q.3 Fill in the following blanks.

$$\frac{12}{20} = \frac{\square}{5} = \frac{9}{\square}$$

Solution: first we take, $\frac{12}{20} = \frac{\square}{5}$

As, we know that $\frac{20}{5} = 4$

so, $\frac{12}{20} = \frac{12 \div 4}{20 \div 4} = \frac{3}{5}$

Hence, first missing number is 3.

To find second missing number, we consider

$$\frac{3}{5} = \frac{9}{\square}$$

we multiply numerator and denominator by 3.

$$\frac{3}{5} = \frac{3 \times 3}{5 \times 3} = \frac{9}{15}$$

∴ second missing number is 15.

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