Exercise 10B

Q1

Answer :

(i) 4, 6, 8, 12

$$\frac{4}{6} = \frac{4 \div 2}{6 \div 2} = \frac{2}{3}; \quad \frac{8}{12} = \frac{8 \div 4}{12 \div 4} = \frac{2}{3}$$

Hence, 4:9::8:12 are in proportion.

(ii) 7, 42, 13, 78

$$\frac{7}{42} = \frac{7 \div 7}{42 \div 7} = \frac{1}{6}; \quad \frac{13}{78} = \frac{13 \div 13}{78 \div 13} = \frac{1}{6}$$

Hence, 7:42::13:78 are in proportion.

(iii) 33, 121, 9, 96

$$\frac{33}{121} = \frac{33 \div 11}{121 \div 11} = \frac{3}{11}; \quad \frac{9}{96} = \frac{9 \div 3}{96 \div 3} = \frac{3}{32}$$

Hence, 33:121::9:96 are not in proportion.

(iv) 22, 33, 42, 63

$$\frac{22}{33} = \frac{22 \div 11}{33 \div 11} = \frac{2}{3} \text{ and } \frac{42}{63} = \frac{42 \div 21}{63 \div 21} = \frac{2}{3}$$

Hence, 22:33 :: 42 : 63 are not in proportion.

(v) 32, 48, 70, 210

$$\frac{32}{48} = \frac{32 \div 6}{48 \div 6} = \frac{7}{8}; \quad \frac{70}{210} = \frac{70 \div 70}{210 \div 70} = \frac{1}{3}$$

Hence, 32:48::70:210 are not in proportion.

(vi) 150, 200, 250, 300

$$\frac{150}{200} = \frac{150 \div 50}{200 \div 50} = \frac{3}{4}; \quad \frac{250}{300} = \frac{250 \div 50}{300 \div 50} = \frac{5}{6}$$

Hence, 150:200::250:300 are not in proportion.

Q2

Answer :

(i) 60:105::84:147

$$\frac{60}{105} = \frac{60 \div 15}{105 \div 15} = \frac{4}{7} \quad \text{(H.C.F. of 60 and 105 is 15.)}$$

$$\frac{84}{147} = \frac{84 \div 21}{147 \div 21} = \frac{4}{7} \quad \text{(H.C.F. of 84 and 147 is 21.)}$$

(ii) 91:104::119:136

$\dfrac{91}{104}$ = $\dfrac{91 \div 13}{104 \div 13}$ = $\dfrac{7}{8}$ (H.C.F. of 91 and 104 is 13.)

$\dfrac{119}{136}$ = $\dfrac{119 \div 17}{136 \div 17}$ = $\dfrac{7}{8}$ (H.C.F. of 11 and 136 is 17.)

Hence, 91:104::119:136 are in proportion.

(iii) 108:72::129:86

$\dfrac{108}{72}$ = $\dfrac{108 \div 36}{72 \div 36}$ = $\dfrac{3}{2}$ (H.C.F. of 108 and 72 is 36.)

$\dfrac{129}{86}$ = $\dfrac{129 \div 43}{86 \div 43}$ = $\dfrac{3}{2}$ (H.C.F. of 129 and 86 is 43.)

Hence, 108:72::129:86 are in proportion.

(iv) 39:65::141:235

$\dfrac{39}{65}$ = $\dfrac{39 \div 13}{65 \div 13}$ = $\dfrac{3}{5}$ (H.C.F. of 39 and 65 is 13.)

$\dfrac{141}{235}$ = $\dfrac{141 \div 47}{235 \div 47}$ = $\dfrac{3}{5}$ (H.C.F. of 141 and 235 is 47.)

Hence, 39:65::141:235 are in proportion.

Q3

Answer :

(i) 55:11::x:6

Product of extremes = Product of means

$55 \times 6 = 11 \times x$

$\Rightarrow \qquad 11x = 330$

$\Rightarrow \qquad x = \dfrac{330}{11} = 30$

(ii) 27:x::63:84

Product of extremes = Product of means

$27 \times 84 = x \times 63$

$\Rightarrow \qquad 63x = 2268$

$\Rightarrow \qquad x = \dfrac{2268}{63} = 36$

(iii) 51:85::57:x

Product of extremes = Product of means

$51 \times x = 85 \times 57$

$\Rightarrow \qquad 51x = 4845$

$\Rightarrow \qquad x = \dfrac{4845}{51} = 95$

(iv) x:92::87:116

Product of extremes = Product of means

$x \times 116 = 92 \times 87$

$\Rightarrow \qquad 116x = 8004$

$\Rightarrow \qquad x = \dfrac{8004}{116} = 69$

Q4

Answer :

(i) 51:68::85:102

   Product of means = 68 × 85 = 5780

   Product of extremes = 51 × 102 = 5202

   Product of means ≠ Product of extremes

    Hence, (F).

(ii) 36:45::80:100

  Product of means = 45 × 80 = 3600

  Product of extremes = 36 × 100 = 3600

  Product of means = Product of extremes

   Hence, (T).

(iii) 30 bags:18 bags::Rs 450:Rs 270

    or 30:18::450:270

   Product of means = 18 × 450 = 8100

   Product of extremes = 30 × 270 = 8100

   Product of means = Product of extremes

   Hence, (T).

(iv) 81 kg:45 kg::18 men:10 men

    or 81:45::18:10

   Product of means = 45 × 18 = 810

   Product of extremes = 81 × 10 = 810

   Product of means = Product of extremes

   Hence, (T).

(v) 45 km:60 km::12 h:15 h

    or,45:60::12:15

   Product of means = 60 × 12 = 720

   Product of extremes = 45 × 15 = 675

   Product of means ≠ Product of extremes

    Hence, (F).

(vi) 32 kg:Rs 36::8 kg:Rs 9

   Product of means = 36 × 8 = 288

   Product of extremes = 32 × 9 = 288

   Product of means = Product of extremes

   Hence, (T).

********** END **********