28-32

Course overview chart

Ch - 17

Day-1 - Recap, Introduction + Ex-17.1 (1 to 6 sums)

Day-2 - Ex-17.1 (7 to 10 sums) + Inverse variation examples

Day-3 - Ex-17.2 (1 to 8 sums)

Day-4 - Ex-17.2 (9 to 15 sums)

Flow chart

Mathematics

↓

Arithematic

↓

Direct and Inverse variation

Ex 17.1

1 Find p and q, if $x \propto y$.

x	7	p	14	33
y	28	112	56	q

$k = \frac{7}{28} = \frac{1}{4}$

$\frac{p}{112} = \frac{1}{4}$

$p = \frac{112 \times 28}{4} = 28$

$\frac{33}{q} \propto \frac{1}{4}$ $q = 33 \times 4 = 132$

2) If quantities vary directly, find the constant of variation

a)

x	1	2	3	4	5
y	7	14	21	28	35

$k = \frac{1}{7}$

b

x	0.5	1	4.5	2	2.5
y	2.5	5	22.5	10	12.5

$k = \frac{1}{5}$

c

x	4	6	10	11	5
y	40	60	100	110	50

$k = \frac{1}{10}$

3 $T_1 = 4$ hrs

$T_2 = 2\frac{1}{2}$ hrs $= \frac{5}{2}$ hrs

tank	1	x
time	4 hrs	$2\frac{1}{5}$ hrs

$k = \frac{1}{4}$

$\frac{x_2}{5/2} = \frac{1}{4}$

$4x = \frac{5}{2}$

$x = \frac{5}{8}$

4 HW 5 to m/s

5 Jam bottles = 140
Packed in carton boxes = 20
No of jam bottles packed = x
~~bottles~~ 1 box = $\frac{140}{20}$ = 7

75 boxes = x = 75 × 7
= 525

6[HW]

H.W sum

4 Can cross ~~at~~ a bridge = 6 ½ sec
Speed = 12 ½ Km/hr
Length = x

$5\overline{)16.0}$ = 3.5
−15
30
−30
0

~~Speed = 12.5 Km/hr $\frac{25}{2}$~~ $\frac{1 Km}{1 hr} = \frac{1000}{3600} = \frac{5}{18}$
~~$l = \frac{13}{2} =$~~

~~$\therefore \frac{13}{2}$ Km/hr $= \frac{13}{2} \times \frac{5}{18}$~~

$\frac{25}{2} \times \frac{5}{18} = \frac{125}{36}$
= 3.472 m/s

~~3600 sec = 12500 m~~
~~6.5 sec = $\frac{65}{10}$~~

~~$\therefore \frac{12500}{3600} \times \frac{65}{10} = \frac{25 \times 65}{162} = \frac{1625}{162}$~~

D = S × T
= 3.472 × 6.5
= 22.568 m

6 Paresh earns ₹ ~~11~~ in 6 week = ₹ 1104

∴ He earns in 1 week = ₹ $\frac{1104}{6}$ = ₹ 184

∴ He earns in 52 week = 184 × 52

= ₹ 9568

29-3-22
7 H.W

Ch-17

8 Rice weight (W_1) = 20 kg

Cost (C_1) = ₹ 880

2 quintals rice (W_2) = 200 kg

20 : 880 :: 200 : x

$20x = 880 \times 200$

$x = \frac{880 \times 200}{20}$

= ₹ 8800

200 kg rice cost = ₹ 8800

9 No. of gold wires $(n_1) = 5^-$

Their mass $(m_1) = 250\ mg$

If weight $(m_2) = 1\ kg$

$1\ kg = 1000000\ mg$

$5^- : 250 :: x : 1000000$

$250x = 5^- \times 1000000$

$x = \frac{5^- \times 1000000}{250}$

$= 20000$

$\therefore$ No. of wires $= 20000$

10 Printer prints pages $(P_1) = 56$

Time $(T_1) = 8$ mins

If Time $(T_2) = 2\frac{1}{2}$ hr $= \frac{5^-}{2} = \frac{5^-}{2} \times 60^{30} = 150$ mins

$56 : 8 :: x : 150$

$8x = 56 \times 150$

$x = \frac{56 \times 150}{8} = 1050$

$\therefore$ pages $= 1050$

H.W sums

7 Speed (S) = 60 km/hr

1 hr = 60

60 km = 1 hr

450 km = $\frac{450}{60}$ = 8 hr

31-3-22 Day-3

1 Eg) No. of articles (x) and their price (y)

2 Weight of articles (x) and their cost (y)

3 Wages (y) and the number of hours (x) of work

4 Area of land (x) and its cost (y)

5 Money deposited in bank (x) and interest earned on it (y)

25 S = 120 km/hr

T = 15 sec

D = ?

km/hr to m/sec

$\Rightarrow 120 \times \frac{5}{18} = \frac{600}{18}$ m/s

$D = S \times T = \frac{600}{18} \times 15 = \frac{9000}{18} = 500$ m

6 cost per kg = ₹12
Weight = 30 kg
cost increased = ₹3
New cost per kg = 12 + 3 = ₹15

$xy = k = 12 \times 30 = 15 \times y$

$\Rightarrow 15y = 12 \times 30$

$\Rightarrow y = \frac{12 \times 30}{15} = 12 \times 2 = 24$ kg

∴ 24 kg flower can be bought for ₹15 per kg

7 25 workers = 150 days

No. of workers	25	x
No. of days	150	125

x and y vary inversely

$\therefore xy = k = 25 \times 150 = x \times 25$

$\Rightarrow 125x = 25 \times 150$

$\Rightarrow x = \frac{25 \times 150}{125} = \frac{150}{5} = 30$

∴ 30 workers are required to complete the in 125 days

8. Misha runs at a speed of 36 km/hr

a. $T = 10 \text{ min} \Rightarrow \frac{10}{60} = \frac{1}{6} \text{ hr}$

$D = S \times T = 36 \times \frac{1}{6} = \frac{36}{6} = 6 \text{ km}$

b. $S = 36 \text{ km/hr}$

$T = 15 \text{ min} \Rightarrow \frac{15}{60} = \frac{1}{4} \text{ hr}$

$D = S \times T = 36 \times \frac{1}{4} = \frac{36}{4} = 9 \text{ km}$

c. $D = 9 \text{ km}$

$T = 20 \text{ min} = \frac{20}{60} = \frac{1}{3} \text{ hr}$

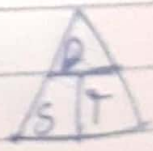
$S = \frac{\text{Distance}}{\text{Time}} = \frac{9}{\frac{1}{3}} = 9 \times 3 = 27 \text{ km/hr}$

H.W sums

3. $S = 32 \text{ km/hr}$

$D = 224 \text{ km}$

$T = \frac{D}{S} = \frac{224}{32} = 7 \text{ hours}$



8 $T_1 = 3 hr$, $Q_1 = 100$, $T_2 = ?$, $Q_2 = 25$

$T_1 : Q_1 :: T_2 : Q_2$

$3 : 100 :: T_2 : 25$

$T_1 : Q_1 :: T_2 : Q_2 \quad T_2 : Q_2$

$3 : 100 :: T_2 : 25$

$100\, T_2 = 3 \times 25$

$T_2 = \frac{3 \times 25}{100} = \frac{3}{4} \times 60 = 45$ min

Day 4

9 $T_1 = 4$ hrs

$S_1 = 60$ km/hr

$T_2 = 3$ hr

$S_2 = x$

$T_1 \times S_1 = T_2 \times S_2$

$4 \times 60 = 3 \times x$

$x = \frac{4 \times 60}{3} = 80$ km/hr

10 Labours = 12

Road length = 480 m

Time = 4 days

Labours = x

Road length = 900 m

Time = 4 days

Labour	length	time
12	480	9
x	900	4

$x \times 480 \times 9 = 12 \times 900 \times 4$

$x = \frac{12 \times 900 \times 4}{480 \times 9} = 10$ workers

11 Workers (W_1) = 14

Machine made in (T_1) = 45 hr

T_2 = 35 hr

$W_2 = x$

$14 \times 45 = x \times 35$

$x = \frac{14 \times 45}{35} = 18$

W_2 = 18 workers

12 $M_1 = 35$

$D_1 = 8$

$M_2 = 10$

$D_2 = x$

$M_1 \times D_1 = M_2 \times D_2$

$35 \times 8 = 10 \times x$

$x = \frac{35 \times 8}{10} = 28$

13 $S_1 = 48$

$F_1 = 14$

$S_2 = 48 - 6$

$= 42$

$F_2 = x$

$S_1 \times F_1 = S_2 \times F_2$

$48 \times 14 = 42 \times x$

$x = \frac{48 \times 14}{42} = 16$ days

14 $x \propto \frac{1}{y}$

$x_1 = 9, \; y_1 = 4$

$x_2 = 18, \; y_2 = ?$

$x_1 \times y_1 = x_2 \times y_2$

$9 \times 4 = 18 \times y_2$

$y_2 = \frac{9 \times 4}{18} = 2$

15 $H_1 = 6$

$d_1 = 20$

$d_2 = x$

$H_1 \times d_1 = H_2 \times d_2$

$6 \times 20 = 15 \times x$

$x = \frac{6 \times 20}{15} = 8$