Assignment - 4

Q1 → A grocer purchased 80 kg of sugar at ₹ 13.50 per kg and mixed it with 120 kg sugar at ₹ 16 per kg. At what rate should he sell the mixture to gain 16% ? [ER]

Sol → C.P. of 200 kg of sugar $= [80 \times 13.50 + 120 \times 16]$

$$= \frac{80 \times 1350}{100} + 120 \times 16$$

$$= 1080 + 1920$$

$$= ₹3000$$

$\therefore$ S.P. is 116% of 3000 $= \frac{116}{100} \times 3000$

$$= ₹3480.$$

$\therefore$ The rate of sugar $= \frac{3484}{200} = ₹17.4$

Q2 → When a producer allows 36% commission on the retail price of his product, he earns a profit of 8.8%. What would be his profit percent if the commission is reduced by 24% ?

Sol. → Let retail price be 100. Then commission = ₹36

S.P. = (100 − 36) = 64. Profit % = 8.8%.

$$C.P. = \left(\frac{1000}{10818} \times \frac{37}{64} \right)$$

$$C.P. = ₹\frac{1000}{17}.$$

Now, commission = ₹12 so, S.P.= (100-12) = ₹88

$$\text{Gain} = \left(88 - \frac{1000}{17}\right) = \frac{496}{17}$$

$$\text{Gain \%} = \frac{\frac{496}{17} \times 100}{\frac{1000}{17}}$$

$$= \frac{496}{17} \times 100 \times \frac{17}{1000}$$

$$= \frac{49600}{1000}$$

$$\boxed{\text{Gain} = 49.6 \%}$$

Q3:- A man bought a horse and a carriage for ₹3000. He sold the horse at a gain of 20% and carriage at a loss of 10%, thereby gaining 2% on the whole. Find the cost of the horse?

Sol→ C.P. of both (horse and a carriage) = 3000 Rs

C.P. of a horse = ₹100

S.P. of a horse = 20% of 100

$$= \frac{20}{100} \times 100$$

$$= 20$$

~~S.P. of a horse~~ Total selling price = 100 + 20

$$= 120.$$

Let carriage C.P. be = 200

Then it at loss $= 2cmp \times \frac{1\%}{7\%}$

$= 20$.

Then loss on carriage $= 2cm - 20$
$= 180$.

So total transaction $= 3000$.
Than horse rate $= ₹1200$
Than carriage rate $= ₹1800$

$$\boxed{Horse\ Rate = ₹1200}$$

q4→ A and B working seprately can do a peice of work in 9 and 12 days respectively. If they work together for a day alternatly, A begining, in how many ways, the work will the completed?

sol.→ One day work of $A = \dfrac{1}{9}$

One day work of $B = \dfrac{1}{12}$

$(A+B)$ 2 day's work $= \left(\dfrac{1}{9} + \dfrac{1}{12}\right)$

$= \dfrac{4+3}{36} = \dfrac{7}{36}$.

5's day work for 5 pairs are $=$ pairs are $= \left(\dfrac{5 \times 7}{36}\right)$

Remaining Work $= 1 - \dfrac{35}{36}$

$$= \dfrac{36-35}{36} = \dfrac{1}{36}$$

Now on 11TH day it's A turn who can complete in $\dfrac{1}{9}$ days.

$\Rightarrow \left(\dfrac{1}{36} \times 9\right) = \dfrac{1}{4}$

Total work will be completed in $= \left(10 + \dfrac{1}{4}\right)$

$$= 10\dfrac{1}{4} \text{ days.}$$

Q5→ 2 men and 3 boys can do a piece of work in 10 days while 3 men and 2 boys can do the same work in 8 days. In how many days can 2 men and 1 boy do the work?

Sol → Let the men be x

Let the boys be y.

~~$2x + 3y =$~~

One day work of 2 men and 3 boys $= \dfrac{1}{10}$

One day work of 3 men and 2 boys $= \dfrac{1}{8}$

$2x + 3y = 1/10$

$3x + 2y = 1/8.$

$$2x + 3y = \frac{1}{10}$$

$$3x + 2y = \frac{1}{8}$$

$$20x + 30y = 1 \quad \times 6$$
$$24x + 16y = 1 \quad \times 5$$

$$120x + 180y = 6$$
$$120x + 80y = 5$$
$$\underline{-\quad\quad-\quad\quad-}$$

$$100y = 1$$
$$y = \frac{1}{100}.$$

$$= 20x + 30y = 1$$
$$= 20x + 30 \times \frac{1}{100} = 1$$

$$= 20x + \frac{3}{10} = 1$$

$$= 20x = 1 - 3$$
$$\qquad\qquad 10$$

$$= 20x = 7$$
$$\qquad\quad 10$$

$$= x = \frac{7}{10} \times \frac{1}{20}$$

$$x = \frac{7}{200}$$

$$2x = \frac{7}{200} \times 2 = \frac{7}{100}$$
$$\qquad\qquad 100$$

Total work of men and boys are $= \dfrac{1}{100} + \dfrac{7}{200}$

$$= \dfrac{1+7}{100} = \dfrac{8}{100} = \dfrac{2}{25}.$$

Total days work of $= \dfrac{25}{2}$ days.

$$= 12\dfrac{1}{2} \text{ days.}$$

Q6→ A can do a peice of work in 80 days. He works at it for 10 days and then B alone finishes the remaining work in 42 days. In how much time A and B working together, finish the work?

Sol.→ A's 10 days work $= \dfrac{1}{80} \times 10$

$$= \dfrac{1}{8}.$$

Remaining work $= 1 - \dfrac{1}{8} = \dfrac{7}{8}.$

Then, $\dfrac{7}{8}$ work would be complete in 42 days by B.

Then, whole work of B $= \dfrac{8}{7} \times 42$

$$= 48 \text{ days.}$$

A's one day work $= \dfrac{1}{80}$

B's one day work $= \dfrac{1}{48}$

A + B one day work $= \dfrac{1}{80} + \dfrac{1}{48}$

$\qquad\qquad\qquad = \dfrac{3+5}{240} = \dfrac{8}{240}$

The whole work of $A + B = \dfrac{240}{8} = 30$ days.