

Chain System the Formula

Himanshu

Bachelor of Arts, GNC Budhlada

Kabir Colony, Ward No. 4, Budhlada, Dist. Mansa (PB) INDIA

Abstract – In this paper I describe the formula of chain reaction which is implementing in the every business system. In this paper I make a formula which finds the chain's stages through a number of members those participate in the chain system. In this paper I make a formula of profit and commission in chain system using arithmetic and geometric methodology and this formula calculates the total profit at each stage of chain system.

Keywords- Introduction, Methodology; Conclusion; Acknowledgment;

Introduction- In the chain system a number of members are participated under already joined members. There is one person which is head of business system and he/she implements the chain system in his/her business to earn much profit. Members who are participate in the chain system gets commission at each stage of chain system. I implements following 3 formulas:

1. Formula which finds the chain's stages through a number of members those participate in the chain system.

$$\text{Total member} = \frac{(G^n - 1)}{(G - 1)}$$

"G" shows quantity of numbers of members which tells how many members can make by each member.

"n" = no of stages

2. Formula of profit and commission in chain system:

$$\text{Total profit} = \frac{(G^n - 1)}{(G - 1)} \left\{ \frac{P - C}{(G - 1)} \right\} + \frac{nC}{(G - 1)}$$

"P" = Starting Price

"C" = Commission

"n" = no of stages

3. Commission = (n-1)C

METHODOLOGY:

If every member has put "G" member and every "G" member has to put "G" member toward

$$\text{Then total member} = \frac{(G^n - 1)}{(G - 1)}$$

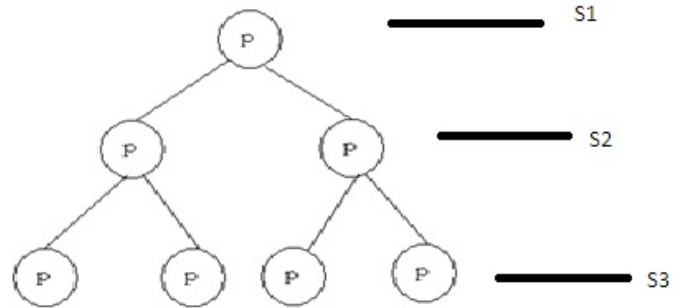
$$\text{And total profit} = \frac{(G^n - 1)}{(G - 1)} \left\{ \frac{P - C}{(G - 1)} \right\} + \frac{nC}{(G - 1)}$$

Here:

"P" = Starting Price

"C" = Commission

"n" = no of stages



- (1) S1, S2, S3 are Stages

- (2) "P" is Starting Price:

$$\text{Profit in S1} = P$$

$$\text{Profit in S2} = 2P - C$$

$$\text{Profit in S3} = 4P - 3C$$

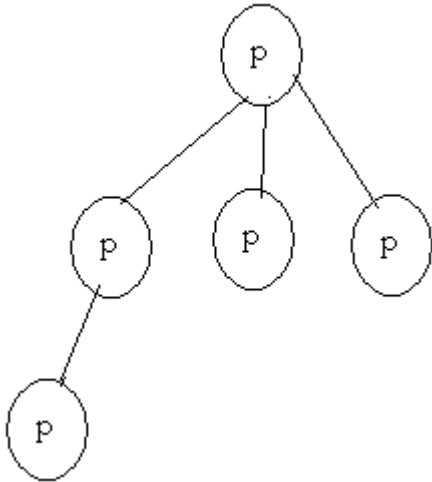
$$\text{Total Profit in (S1, S2, S3)} = 7P - 4C$$

For Example: - If every member has put 2-2 member for his chain system and total member are 7 than find total profit.

$$\text{Ans: - Total member is} = 7 = \frac{(G^n - 1)}{(G - 1)}$$

$$7 = \frac{(2^n - 1)}{(2 - 1)} \Rightarrow 2^n = 8 \Rightarrow n = 3$$

$$\begin{aligned} \text{Total profit} &= \frac{(G^n - 1)}{(G - 1)} \left\{ \frac{P - C}{(G - 1)} \right\} + \frac{nC}{(G - 1)} \\ &= \frac{(2^3 - 1)}{(2 - 1)} \left(\frac{P - C}{(2 - 1)} \right) + \frac{3C}{2 - 1} \\ &= 7(P - C) + 3C = 7P - 7C + 3C \\ &= 7P - 4C \text{ Ans.} \end{aligned}$$



Profit in S1 = P
 Profit in S2 = 3P-C
 Profit in S3 = P
 Total Profit in (S1, S2, S3) = 5P-C

If every member has put 3-3 member for his chain system and total member is 5 and then find Profit.

Ans: - Total member = $5 = \frac{3^n - 1}{3 - 1}$

$\Rightarrow 3^n = 11$

If this does not express in power of "3" then a smaller number is chosen which can be expressed in power of "3" completely

$\Rightarrow 3^n = 9 \Rightarrow n = 2$

"R" is equal to difference between them.

$R = 11 - 9 \Rightarrow R = 2$

Now profit = $\frac{(G^n - 1)}{(G - 1)} \{ \frac{P - C}{(G - 1)} + \frac{nC}{(G - 1)} \}$
 $= \frac{(3^2 - 1)}{(3 - 1)} \{ \frac{P - C}{(3 - 1)} + \frac{2C}{3 - 1} \}$
 $= 4P - C$ Ans. (1)

Now find out $I = \frac{R}{G - 1}$

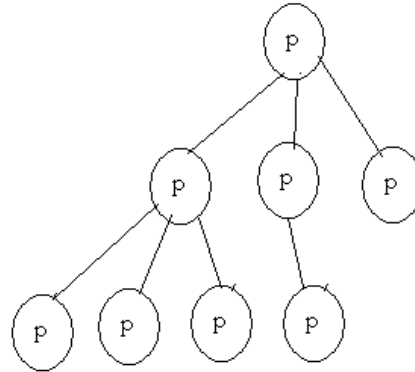
Now are arise two cases: -

Case 1: - If $I < G$ then add IP in (1)

Case 2: - If $I \geq G$ find $I/G = X \dots$ and then add $IP - XC$ in (1)

Now $I = \frac{R}{G - 1} = \frac{2}{3 - 1} = 1 \Rightarrow I = 1$

By case 1: add "P" in (1)
 So, total profit = $4P - C + P = 5P - C$ Ans.



Profit in S1 = P
 Profit in S2 = 3P-C
 Profit in S3 = 4P-C
 Total Profit in (S1, S2, S3) = 8P-2C

If every member has put 3-3 member for his chain system and total member is 8 then find profit.

Ans: - Total member = $8 = \frac{3^n - 1}{3 - 1}$

$\Rightarrow 3^n = 17$

$R = 8$

$\Rightarrow 3^n = 9 \Rightarrow n = 2$

Profit = $\frac{(G^n - 1)}{(G - 1)} \{ \frac{P - C}{(G - 1)} + \frac{nC}{(G - 1)} \}$
 $= \frac{(3^2 - 1)}{(3 - 1)} \{ \frac{P - C}{(3 - 1)} + \frac{2C}{3 - 1} \}$
 $= 4P - C$ Ans. (1)

Now $I = \frac{R}{G - 1} = \frac{8}{3 - 1} = 4$

Since $4 > 3 \Rightarrow I > G$

Now $I/G = 4/3 = 1.33$

By case II add $4P - C$ in (1)

So, total profit = $8P - 2C$ Ans.

For Commission

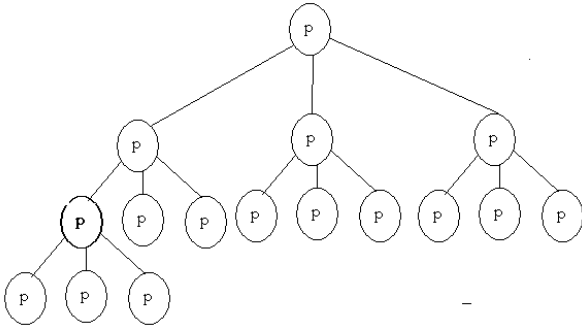
Commission = $(n-1)c$

For Example if every member his chain system 3-3 member for member is 13 then find Commission;

Sol \Rightarrow total member is $13 = \frac{3^n - 1}{3 - 1}$

$27 = 3^n \Rightarrow n = 3$

Commission = $(3-1) C = 2C$ ans.



- # If every member has put 3-3 member for his chain system and total member is 16 then find Commission
- # Sol=> total member = $16 = \frac{3^n - 1}{3 - 1} \Rightarrow 3^n = 33$
- $3^n = 27 \Rightarrow n = 3$
- Commission = $(3 - 1)C = 2C$ Ans.

CONCLUSION

We can find the chain's stages through a number of members those participate in the chain system business and also can find profit and commission at any stage in chain system.

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