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Complex Chain System the Formula

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Abstract: ***I described a paper Chain System the Formula by Himanshu in International Journal of Mathematics Trends and Technology. On this paper I described the formula for find profit and commission in chain system. On this system those members participate in this chain system he also create own members but now this system who's already included in this system not necessary to create own members***

Keywords: Complex Chain; Profit; Commission

1. 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. But few members do not get commission and they are not create own members. I implements following 3 formulas:

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

$$\text{Total member} = 1 + \frac{(G_1^{n-1}-1)G}{(G_1-1)} \quad \text{For all } n>1$$

$$\text{Total member} = 1 \quad \text{If } n=1$$

"G" shows quantity of numbers of members which tells how many members can make by each member and "G_1" shows quantity of numbers of members who forward members;

2. Formula of profit and commission in chain system

$$\text{Total profit} = P + (GP - \frac{G_1C}{(G_1-1)})\frac{(G_1^{n-1}-1)}{(G_1-1)} + \frac{(n-1)C}{(G_1-1)} \quad \text{For all } n>1$$

$$\text{Total Profit}=P \quad \text{If } n=1$$

➢
"P" = Starting Price
"C" = Commission
"n" = no of stages

➢
Commission =(n-1)C

2. Methodology

If one member can make "G" members under his chain then only "G_1" member of them (where G_1<G) can make a chain forward;

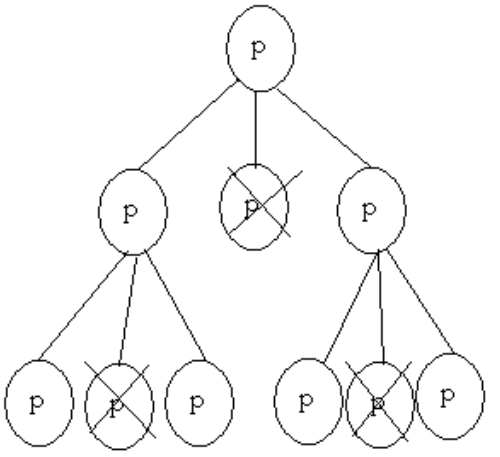
$$\text{Then total member} = 1 + \frac{(G_1^{n-1}-1)G}{(G_1-1)} \quad \text{For all } n>1$$

$$\text{Total member} = 1 \quad \text{If } n=1$$

and Total profit = $P + (GP - \frac{G_1C}{(G_1-1)})\frac{(G_1^{n-1}-1)}{(G_1-1)} + \frac{(n-1)C}{(G_1-1)}$ For all n>1

Total Profit=P If n=1

Here:
"P" = Starting Price
"C" = Commission
"n" = no of stages



Profit in S1 = P
Profit in S2 = 3P-C
Profit in S3 = 6P-3C
Total Profit in (S1, S2, S3) = 10P-4C

For example if one member can make "3" members under his chain then only "2" member of them can forward their chain then find profit and total member is 10;

Ans: - Here G=3, G_1=2;

$$\text{Total member}=10=1+\frac{(G_1^{n-1}-1)\,G}{(G_1-1)}$$

$$=>10=1+\frac{(2^{n-1}-1)3}{(2-1)} => 9=3(2^{n-1}-1)$$

$$=>2^{n-1}=4 => n=3$$

$$\text{Total profit} = P+ (GP-\frac{G_1C}{(G_1-1)})\,\frac{(G_1^{n-1}-1)}{(G_1-1)} + \frac{(n-1)C}{(G_1-1)}$$

$$= P + (3P-\frac{2C}{(2-1)})\,\frac{(2^{3-1}-1)}{(2-1)} + \frac{(2)C}{(2-1)}$$

$$= P+ (3P -2C)\,(3) +2C$$

$$= P+ 9P -6C + 2C$$

$$=10P -4C \quad \text{Ans}$$

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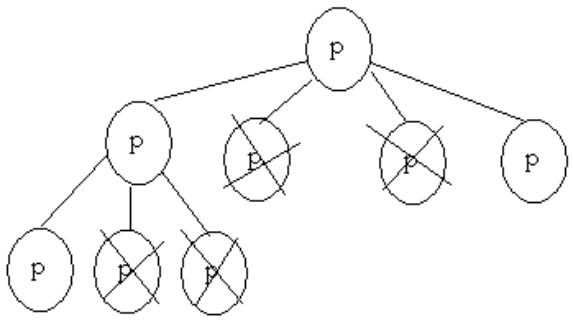
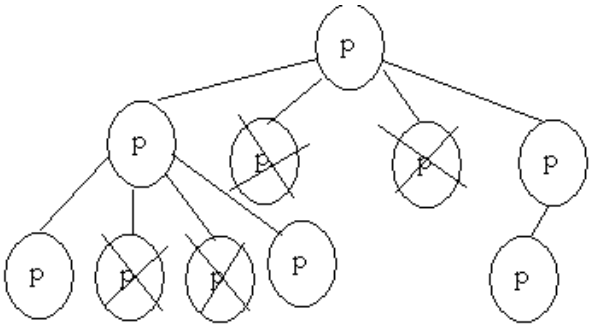


Profit in S1 = P
Profit in S2 = 4P-C
Profit in S3 = 3P
Total Profit in (S1, S2, S3) = 8P-C
if one member can make "4" member under his chain then only "2" member of them can forward their chain and total member is 8 then find front
Answer: Total member 8 = $1+ \frac{(G_1^{n-1}-1)G}{(G_1-1)}$

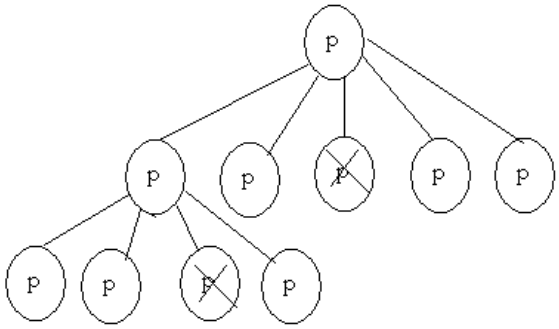
$8 = 1+ \frac{(2^{n-1}-1)4}{(2-1)}$
$7 = (2^{n-1}-1)4$
$7 = 2^{n+1} – 4$
$2^{n+1} = 11$
If this does not express in power of "2" then a smaller number is power of "2" completely and "R" is equal to difference between them;
R = 3
$2^{n+1} =8$
n=2
Profit = $P+ (Gp-\frac{G_1C)}{(G_1-1)} \frac{(G_1^{n-1}-1)}{(G_1-1)} + \frac{(n-1)}{(G-1)} C$
$= P + (4P-\frac{2C)}{(2-1)} \frac{(2^{2-1}-1)}{(2-1)} + \frac{(2-1)}{(2-1)} C$
= P + (4P-2C) (1) +C
= P+ 4P-2C + C
= 5P-C …… (1)
Now find out I = $\frac{R}{(G_1-1)} = \frac{3}{(2-1)} = 3$
I = 3
Now we arises two cases: -
Case 1: If I<G then add IP in (1)
Case 2: If I >= G find I/G = X.___
Since I =3
Since 3<4 = I<G
By case 1 add 3P in (1)
= 8P – C
Total profit =8P-C Ans



Profit in S1 = P
Profit in S2 = 4P-C
Profit in S3 = 5P-C
Total Profit in (S1, S2, S3) = 10P-2C

if one member can make "4" member under his chain then only "2" members of them can forward their chain and total member is 10 then find profit
A Total member=$10=1+ \frac{(2^{n-1}-1)}{(2-1)} 4$
$= 9 = 2^{n+1} - 4$
$= 2^{n+1} = 13$
R = 5
$= 2^{n+1} = 8$ => n=2
Profit $P+ (GP-\frac{G_1C)}{(G_1-1)} \frac{(G_1^{n-1}-1)}{(G_1-1)} + \frac{(n-1)C}{(G_1-1)}$

$=P + (4P- \frac{2c)}{(2-1)} \frac{(2^{2-1}-1)}{(2-1)} + \frac{(2-1)C}{(2-1)}$
= 5P-C …… (1)
Now I= $\frac{5}{(2-1)} = 4$
Since 5>4 => I>G
By Case II: I/G = 5/4 = 1.25
Add (5P-C) in 1
Total profit =10P-2C ANS



Profit in S1 = P
Profit in S2 = 5P-C
Profit in S3 = 4P
Total Profit in (S1, S2, S3) = 10P-C

if one commission member can make "5" member under his chain then forward their chain and total member is 10 then find profit
A Total member=$10=1 + \frac{(4^{n-1}-1)}{(4-1)} 5$
$27=5.4^{n-1} -5$
$32=5.4^{n-1}$
R=12
$20=5.4^{n-1}$ => n=2
Profit = $P+ (GP-\frac{G_1C)}{(G_1-1)} \frac{(G1^{n-1}-1)}{(G_1-1)} + \frac{(n-1)C}{(G_1-1)}$
$=P+ (5P-\frac{4C)}{(4-1)} \frac{(4^1-1)}{(4-1)} + \frac{(2-1)C}{(4-1)}$
=P+5P-C
= 6P-C ---------- 1
Now I= $\frac{R}{G_1-1} = \frac{12}{3} = 4$
Since 4<5=I<G
Then Add (4P) in 1
Total profit=10P-C Ans

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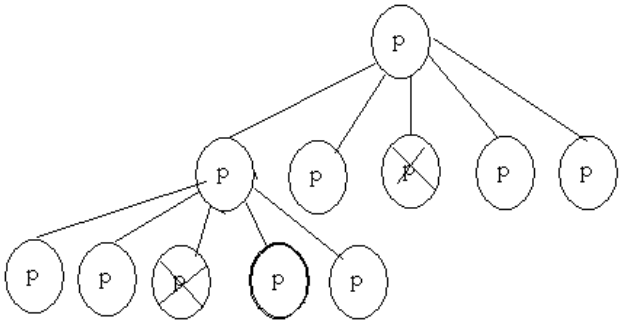
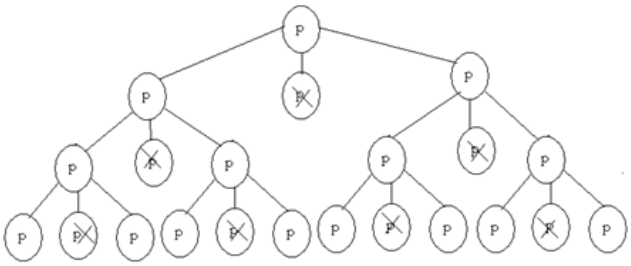


If G=5, G_1=4; total member =11
Then find profit
A since $11=1+\frac{(4^{n-1}-1)}{4-1}5$
$=10=\frac{(4^{n-1}-1)}{3}5$ (are cannot this step and do continuously)
$=> 30 = 5.4^{n-1}-5$
$=> 35 = 5.4^{n-1}$
=> R = 15
$=> 20 = 5.4^{n-1}$
=> n = 2
$\text{Profit} =P + \frac{(5P-4C)}{(4-1)}\frac{(4-1)}{(4-1)} + \frac{(2-1)C}{(4-1)}$
=6P-C---------- 1
Now $I= \frac{R}{(G_1-1)} =\frac{15}{3}$
Since 5=I
G=I
So I/G=1
So add 5P-C in 1
Total profit =11P-2C Ans.



# For Commission
Commission= (n-1) c
For example
If total member is 22, G=3, G_1=2
Then find commission
Sol= total member=$22=1+\frac{(G_1^{n-1}-1)}{(G_1-1)}$ G
$21 = \frac{(2^{n-1}-1)}{(2-1)}$ 3
$7=2^{n-1}-1$
$2^{n-1}=8$
n=4
Commission (4-1) C=3C

3. 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.

References

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