International Journal of Multidisciplinary Research and Development

IJMRD 2015; 2(2): 276-287
www.allsubjectjournal.com
Received: 15-01-2015
Accepted: 30-01-2015
E-ISSN: 2349-4182
P-ISSN: 2349-5979
Impact factor: 3.762

Himanshu
Guru Nanak College, Budhlada-151502, Dist. Mansa (PB) India.

Complex chain system the formula with changeable commission

Himanshu

Abstract
In this paper I describe the formula which is useful to determine the profit or loss in chain business having variable commission and participate member necessary not to create own member. I also describe a formula which is helpful to calculate the profit for a participant according to number of members made participants by him in his chain.

Keywords: To evaluate total profit or loss, commission

1. Introduction
I had published an article named *chain system the formula recently in international journal of mathematics trends and technology* in this paper we can find profit chain business system but in which the commission remains stable at all the stages.
I had also published an article named *complex chain system the formula recently in international journal of science and research* in this paper we can find profit of chain business in which not every participant necessarily make other members participant but the commission remains stable.
I had also published an article named *chain system the formula with changeable commission* recently in *international journal of scientific research and education* in which every participant makes his own members in his chain and they get commission can be changed at different stages.
But now in this paper I describe a formula we can find profit of chain business in which every participant necessary not make his own members in his chain and they get commission can be changed at different stages. This also helps to find that a company is gaining or losing something with the chain business.
The members which participate in chain they can find their profit easily.
Procedure of commission change used in formula-
I will like to clear it with a example that is- Suppose if a person completes a task and gets A% commission of starting price and then if second task is also completed by him then he will get 2(A)% commission and 3(A)% for next task and so on.

2. The formulae are
1. Formula which find the chain's stages through a number of members those participate in the chain system

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

- "G" shows the type of group mean number of members which is to be participated by a member this his chain, that is a member can make only "G" number of members the participant.
- "G_1" number of member those forward their chain.
- "n" number of stage.

Correspondence:
Himanshu
Guru Nanak College, Budhlada-151502, Dist. Mansa (PB) India.

2. Formula for total profit =

$$P + GP\left(\frac{G_1^{n-1}-1}{(G_1-1)}\right)-\left[\frac{G_1^{n+1}-G_1)}{(G-1)^3}-\frac{nG_1}{(G_1-1)^2}-\frac{n(n-1)}{2(G_1-1)}\right]C$$

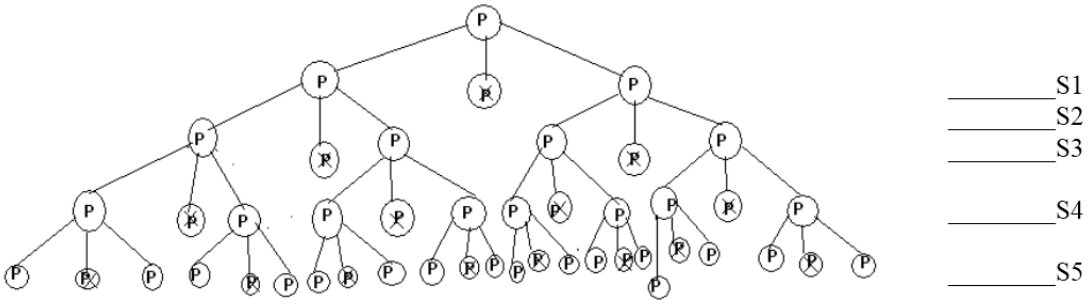
- "P" shows the starting price mean the starting investment by each member.
- "C" showing starting commission mean the first profit gained a member after completing his first task.

3. Formula for evaluating the commission= $\left[\frac{n(n-1)}{2}\right]C$

Methodology

If every member has put "G" member BUT only "G_1"(G > G_1) member has to put "G" member toward in their chain AND commission of member can be changed at different stages THEN:-

Ans



Since Starting Price = 1000 Rs.
Since Starting Commission is 20% of 1000 Rs.
THEN starting commission= 200 Rs.
Profit of S1 = 1000 Rs
Profit of S2 = 3(1000) -200 = 2800 Rs
Profit of S3 = 6(1000)-400-400= 5200 Rs
Profit of S4 = 12(1000)-800-800-600 = 9800 Rs
Profit of S5 = 16(1000)-1600-1600-1200-800 = 18800 Rs
Total Profit = 37600 Rs.

By his methodology:-

Total member = 46

- To4.08 cmtal member =1+$\left(\frac{G_1^{n-1}-1}{G_1-1}\right)$G

- **Total profit =**

$$P + GP\left(\frac{G_1^{n-1}-1}{(G_1-1)}\right)-\left[\frac{G_1^{n+1}-G_1)}{(G-1)^3}-\frac{nG_1}{(G_1-1)^2}-\frac{n(n-1)}{2(G_1-1)}\right]C$$

Where "P" is starting Price
"C" is commission
"n" is no. of Stages
"G_1" number of member those forward their chain.

For example:- If every member has put 3 member for his chain then only 2 members of them can forward their chain then find the total profit starting price is 1000 Rs.. Total member is 46 and starting commission is 20% of 1000 Rs.

We know Total member = 1+$\left(\frac{G_1^{n-1}-1}{G_1-1}\right)$G

Since G = 3; G_1 = 2 then 1+$\left(\frac{2^{n-1}-1}{2-1}\right)3=46$

- ⇨ $(2^{n-1}-1)3= 45$
- ⇨ $2^{n-1}-1=15$
- ⇨ $2^{n-1} = 16$
- ⇨ n-1 = 4
- ⇨ n = 5

We know that Total profit = $P + GP\left(\frac{G_1^{n-1}-1}{(G_1-1)}\right)-\left[\frac{G_1^{n+1}-G_1)}{(G-1)^3}-\frac{nG_1}{(G_1-1)^2}-\frac{n(n-1)}{2(G_1-1)}\right]C$

Since P = 1000; G = 3; G_1 = 2; n = 5; C= 200;

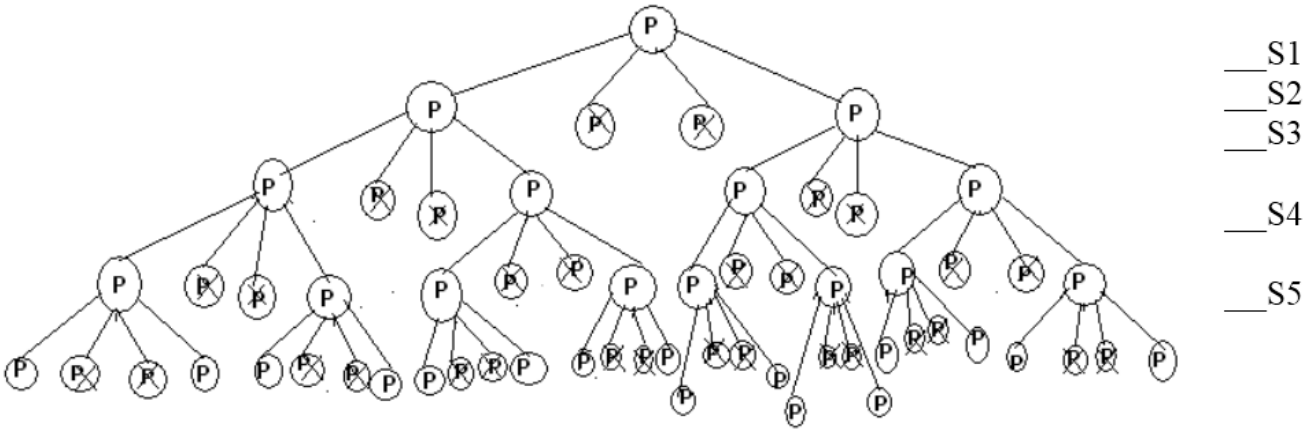
Then total profit =$1000+3(1000)\left(\frac{2^{5-1}-1}{(2-1)}\right)-\left[\frac{2^{5+1}-2}{(2-1)^3}-\frac{5(2)}{(2-1)^2}-\frac{5(5-1)}{2(2-1)}\right]200$

$=1000+3000-\left(\frac{15}{1}\right)-[62-10-10](200)$

=46000-42(200)
=46000-8400
=37600 Rs

- For example:- If every member has put 4 member for his chain then only 2 members of them can forward their chain then find the total profit starting price is 2000 Rs.. Total member is 61 and starting commission is 10% of 2000 Rs.

Ans:-



Since Starting Price = 2000 Rs.
Since Starting Commission is 10% of 2000 Rs.
THEN starting commission= 200 Rs
Profit of S1 = 2000 Rs
Profit of S2 = 8000 -200 = 7800 Rs
Profit of S3 = 16000-400-400= 15200 Rs
Profit of S4 = 32000-800-800-600 = 29800 Rs
Profit of S5 = 64000-1600-1600-1200-800 = 58800 Rs
Total Profit = 113600 Rs.

By his methodology:-

Total member = 61

We know Total member = $1+\left(\frac{G_1^{\,n-1}-1}{G_1-1}\right)G$

Since G = 3; G_1 = 2 then $1+\left(\frac{2^{n-1}-1}{2-1}\right)4=61$

⇨ $(2^{n-1}-1)4= 60$
⇨ $2^{n-1}-1=15$
⇨ $2^{n-1} = 16$
⇨ $n-1 = 4$
⇨ $n = 5$

We know that Total profit = $P + GP\left(\frac{G_1^{\,n-1}-1}{(G_1-1)}\right)-\left[\frac{G_1^{\,n+1}-G_1)}{(G-1)^3}-\frac{nG_1}{(G_1-1)^2}-\frac{n(n-1)}{2(G_1-1)}\right]C$

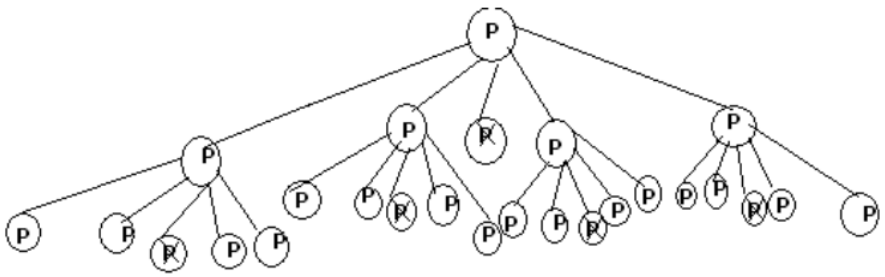
Since P = 2000; G = 4; G_1 = 2; n = 5; C= 200;

Then total profit = $2000+4)(2000)\left(\frac{2^{5-1}-1}{(2-1)}\right)-\left[\frac{2^{5+1}-2\ )}{(2-1)^3}-\frac{5(2)}{(2-1)^2}-\frac{5(5-1)}{2(2-1)}\right]200$

$=2000+8000(15)-[62-10-10](200)$
$=122000-42(200)$
$=122000-8400$
$=113600$ Rs.

- For example:- If every member has put 5 member for his chain then only 4 members of them can forward their chain then find the total profit starting price is 1000 Rs.. Total member is 26 and starting commission is 10% of 1000 Rs.

Ans:-



_____S1

_____S2

_____S3

Since Starting Price = 1000 Rs.
Since Starting Commission is 10% of 1000 Rs.
THEN starting commission= 100 Rs
Profit of S1 = 1000 Rs
Profit of S2 = 5000 -100 = 4900 Rs
Profit of S3 = 20000-400-200= 19400 Rs
Total Profit = 25300 Rs.

By his methodology:-

Total member = 26

We know Total member = $1+\left(\frac{G_1^{\,n-1}-1}{G_1-1}\right)$G

Since G = 3; G_1 = 2 then $1+\left(\frac{4^{n-1}-1}{4-1}\right)5=26$

$=\left(\frac{4^{n-1}-1}{3}\right)5=26-1$

⇨ $(4^{n-1}-1)3=\frac{3(25)}{5}$

⇨ $4^{n-1}-1=15$

⇨ $4^{n-1}=16$

⇨ $n-1=2$

⇨ $n=3$

We know that Total profit = $P+GP\left(\frac{G_1^{\,n-1}-1}{(G_1-1)}\right)-\left[\frac{G_1^{\,n+1}-G_1)}{(G-1)^3}-\frac{nG_1}{(G_1-1)^2}-\frac{n(n-1)}{2(G_1-1)}\right]C$

Since P = 1000; G = 3; G_1 = 2; n = 5; C= 200;

Then total profit = $1000+5(1000)\left(\frac{4^{3-1}-1}{(4-1)}\right)-\left[\frac{4^{3+1}-4)}{(4-1)^3}-\frac{3(4)}{(4-1)^2}-\frac{3(3-1)}{2(4-1)}\right]100$

$=1000+5000-\left(\frac{15}{3}\right)-\left[\frac{256-4}{27}-\frac{12}{9}-\frac{3}{3}\right](100)$

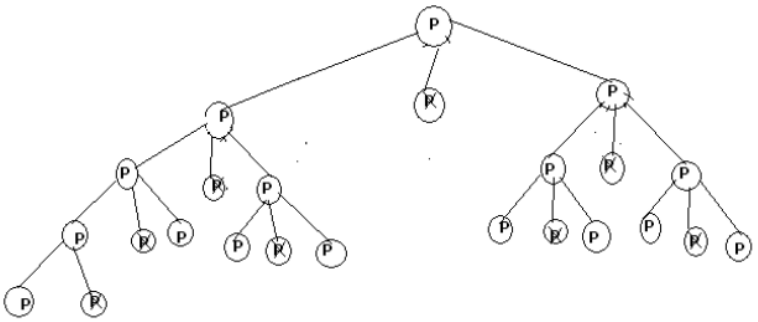
$=26000-\frac{(21)}{3}(100)$

=26000-700

=25300 Rs.

- For example:- If every member has put 3 member for his chain then only 2 members of them can forward their chain then find the total profit starting price is 500 Rs.. Total member is 24 and starting commission is 20% of 500 Rs.

Ans:-



Since Starting Price = 500 Rs.
Since Starting Commission is 20% of 500 Rs.
THEN starting commission= 100 Rs
Profit of S1 = 500 Rs
Profit of S2 = 1500 -100 = 1400 Rs
Profit of S3 = 3000-400= 2600 Rs
Profit of S4 = 6000-1100= 4900 Rs
Profit of S5 = 1500 Rs
Total Profit = 10400 Rs.

By his methodology:-

Total member = 24

We know Total member = $1+\left(\frac{G_1^{\,n-1}-1}{G_1-1}\right)G$

Since G = 3; G_1 = 2 then $1+\left(\frac{2^{n-1}-1}{2-1}\right)3=24$

⇨ $(2^{n-1}-1)3 = 24-1$
⇨ $3.2^{n-1}-3= 23$
⇨ $3.2^{n-1}= 23+3$
⇨ $3.2^{n-1} = 26$

If it does not express then a smaller number is chosen which can be expressed and we get the value of "n"
Like "24" is a smaller number than 26
⇨ $24 = 3.2^{n-1}$
⇨ n = 4
⇨ R is equal to difference between them,
⇨ R = 26-24
⇨ R = 2

Now some part of profit = $P + GP\left(\frac{G_1^{\,n-1}-1}{(G_1-1)}\right)-\left[\frac{G_1^{\,n+1}-G_1)}{(G-1)^3}-\frac{nG_1}{(G_1-1)^2}-\frac{n(n-1)}{2(G_1-1)}\right]C$

Since P = 500; G = 3; G_1 = 2; n = 4; C= 100;

Then total profit = $500+3(500)\left(\frac{2^{4-1}-1}{(2-1)}\right)-\left[\frac{2^{4+1}-4\ )}{(2-1)^3}-\frac{4(2)}{(2-1)^2}-\frac{4(4-1)}{2(2-1)}\right]100$

=500+1500(7)-[30-8-6](100)
=11000-1600
=9400 Rs. _____(1)

Now we find $I=\frac{R}{G_1-1}$

Then we arises three cases:-
Case1:- I<G then add (IP) in (1)
Case2:- if I=G then add (IP-C) in (1)
Case3:- if I>G then find out $\frac{I}{G}=X.--$

Then we arises more cases:-
Case3.1:- X<G then add (IP-XC) in (1)
Case3.2:- if X=G then add (IP-XC-2C) in (1)
Case3.3:- if X>G then find out $\frac{X}{G}=Y.--$
Then Add (IP-XC-2YC) in (1)

Now $I=\frac{R}{G_1-1}$

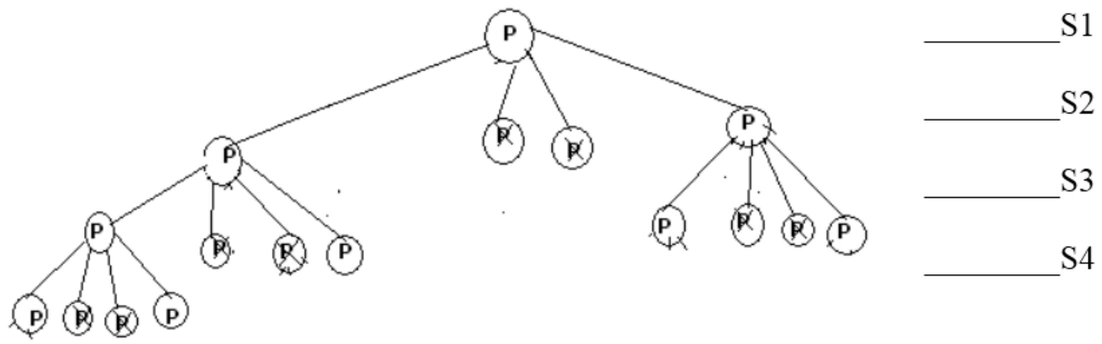
Since R = 2; G_1 = 2

Then $I=\frac{2}{2-1}=2$

I = 2
Since 2 < 3
⇨ I<G
Then by case1:-
Add IP in…… (1)
Mean add 2(500) = 1000 in…. (1)
Total profit = 9400 + 1000 = 10400 Rs.

- For example:- If every member has put 4 member for his chain then only 2 members of them can forward their chain then find the total profit starting price is 800 Rs.. Total member is 17 and starting commission is 12.5% of 800 Rs.

Ans:-



Since Starting Price = 800 Rs.
Since Starting Commission is 12.5% of 800 Rs.
THEN starting commission= 100 Rs
Profit of S1 = 800 Rs
Profit of S2 = 3200 -100 = 3100 Rs
Profit of S3 = 6400-200-200= 6000 Rs
Profit of S4 = 3200-100= 3100 Rs
Total Profit = 13000 Rs.

By his methodology:-

Total member = 17

We know Total member = $1+\left(\frac{G_1^{n-1}-1}{G_1-1}\right)G$

Since G = 4; G_1 = 2 then $1+\left(\frac{2^{n-1}-1}{2-1}\right)4=17$

- ⇨ 2^{n+1} -4 = 17 -1
- ⇨ 2^{n+1} = 16+4
- ⇨ 2^{n+1}= 20
- ⇨ R=4
- ⇨ 2^{n+1}= 16
- ⇨ n+1=4
- ⇨ n=3

Now some part of profit = $P + GP\left(\frac{G_1^{n-1}-1}{(G_1-1)}\right)$ - $\left[\frac{G_1^{n+1}-G_1)}{(G-1)^3}-\frac{nG_1}{(G_1-1)^2}-\frac{n(n-1)}{2(G_1-1)}\right]C$

Since P = 800; G = 4; G_1 = 2; n = 3; C= 100;

Then total profit = $800+4(800)\left(\frac{2^{3-1}-1}{(2\ \ -1)}\right)$ - $\left[\frac{2^{3+1}-2\ )}{(2-1)^3}-\frac{3(2)}{(2-1)^2}-\frac{3(3-1)}{2(2\ \ -1)}\right]100$

= 800+3200(3)-[14-6-3]100
= 800+9600-500
= 9900 Rs. ____________________________(1)

Now we find $I=\frac{R}{G_1-1}$

Since R=4; G_1=2;

$I=\frac{4}{2-1}$ I = 4

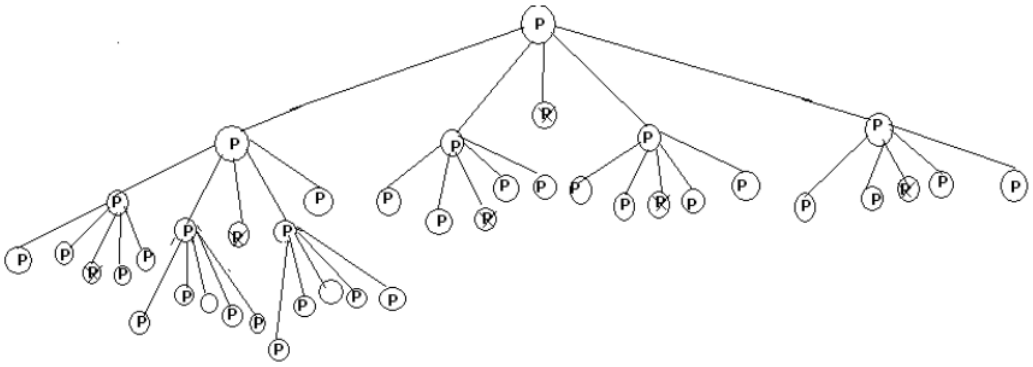
Since I = G = 4
Then by case II
Add (IP-C) in __________ (1)

- ⇨ IP-C = 4(800)-100
- ⇨ 3200-100=3100 Rs.

Add (3100) in ________ (1)
Total profit = 9900 + 3100
= 13000 Rs.

- For example:- If every member has put 5 member for his chain then only 4 members of them can forward their chain then find the total profit starting price is 700 Rs.. Total member is 41 and starting commission is 150.

Ans:-



S1

S2

S3

S4

Profit of S1 = 700 Rs
Profit of S2 = 3500 -150 = 3350 Rs
Profit of S3 = 14000-600-300= 13100 Rs
Profit of S4 = 10500-450= 10050 Rs
Total Profit = 27200 Rs.

By his methodology:-

Total member = 24

We know Total member = $1+\left(\frac{G_1^{\,n-1}-1}{G_1-1}\right)G$

Since G = 5; G_1 = 4 then $1+\left(\frac{4^{n-1}-1}{4-1}\right)5=41$

⇨ $5.4^{n-1}-5=120$
⇨ $5.4^{n-1}=125$
⇨ $5.4^{n-1}=125$
⇨ R=4
⇨ $5.4^{n-1}=80$
⇨ $4^{n-1}=16$
⇨ n-1=2
⇨ n=3

Now some part of profit = $P+GP\left(\frac{G_1^{\,n-1}-1}{(G_1-1)}\right)-\left[\frac{G_1^{\,n+1}-G_1)}{(G-1)^3}-\frac{nG_1}{(G_1-1)^2}-\frac{n(n-1)}{2(G_1-1)}\right]C$

Since P = 700; G = 5; G_1 = 4; n = 3; C= 150;

Then total profit = $700+5(700)\left(\frac{4^{3-1}-1}{(4\ -1)}\right)-\left[\frac{4^{3+1}-4\ )}{(4-1)^3}-\frac{3(4)}{(4-1)^2}-\frac{3(3-1)}{2(4\ -1)}\right]150$

$=700+3500\frac{15}{3}-\left[\frac{252}{27}-\frac{3(4)}{9}-\frac{3(2)}{(2)3}\right](150)$

$=700+3500(15)-\left[\frac{28}{3}-\frac{4}{3}-\frac{3}{3}\right](150)$

$=700+17500-\left(\frac{21}{3}\right)(150)$

=18200-1050
=17150 Rs. _____(1)

Now we find $I=\frac{R}{G_1-1}$

Since R = 4; G_1 = 4

Now we find $I=\frac{R}{G_1-1}$

Since R = 4; G_1 = 4

Then $I=\frac{45}{4-1}=\frac{45}{3}$

I = 15
Since 15>5
⇨ I > G

Then find $X=\frac{I}{G}$

Now $\frac{I}{G} = \frac{15}{5} = 3$

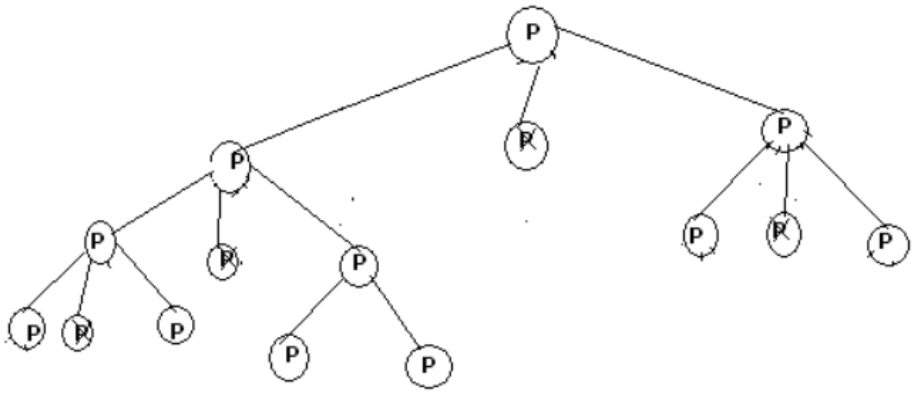
Since X = 3
Since 3 < 4
⇨ $X < G_1$

Then by case 3.1; add (IP – XC) in _____ (1)
Now IP – XC = 15(700) – 3(150)
=10500 – 450
=10050 Rs.

Add in _____ (1)
Then total profit = 17150 + 10050
=27200 Rs.

- For example:- If every member has put 3 member for his chain then only 2 members of them can forward their chain then find the total profit starting price is 1000 Rs.. Total member is 15 and starting commission is 20% of 1000 Rs.

Ans:-



_____S1
_____S2
_____S3
_____S4

Since Starting Price = 1000 Rs.
Since Starting Commission is 20% of 1000 Rs.
THEN starting commission= 200 Rs
Profit of S1 = 1000 Rs
Profit of S2 = 3000 -200 = 2800 Rs
Profit of S3 = 6000-800= 5200 Rs
Profit of S4 = 5000-200= 4800 Rs
Total Profit= 13800 Rs.

By his methodology:-

Total member = 15

We know Total member = $1+\left(\frac{G_1^{\,n-1}-1}{G_1-1}\right)G$

Since G = 3; G_1 = 2 then $1+\left(\frac{2^{n-1}-1}{2-1}\right)3=15$

⇨ $3.2^{n-1} - 3 = 14$
⇨ $3.2^{n-1} = 17$
⇨ R=5
⇨ $3.2^{n-1} = 12$
⇨ $2^{n-1}=4$
⇨ n-1=2
⇨ n=3

Now some part of profit = $P + GP\left(\frac{G_1^{\,n-1}-1}{(G_1-1)}\right) - \left[\frac{G_1^{\,n+1}-G_1)}{(G-1)^3} - \frac{nG_1}{(G_1-1)^2} - \frac{n(n-1)}{2(G_1-1)}\right]C$

Since P = 1000; G = 3; G_1 = 2; n = 3; C= 200;

Then total profit = $1000+3(1000)\left(\frac{2^{3-1}-1}{(2\ \ -1)}\right) - \left[\frac{(2^{3+1}-2\ )}{(2-1)^3} - \frac{3(2)}{(2-1)^2} - \frac{3(3-1)}{2(2\ \ -1)}\right]200$

=1000 + 3000 (3) –[14 – 6 - 3](200)
=10000-1000
=9000 Rs. _____(1)

Now $I = \frac{R}{G_1 - 1}$

Since R = 5; G_1 = 2

Then $I = \frac{5}{2-1} = 5$

I = 5

Since 5 > 3

⇨ I > G

Then find $X = \frac{I}{G}$

Now $\frac{I}{G} = \frac{5}{3} = 1.6\bar{6}$

So X = 1

⇨ 1 < 2

⇨ X < G_1

Then by case 3.1; add (IP – XC) in (1)

Now IP – XC = 5(1000) – 1(200)

=5000 – 200

=4800 Rs.

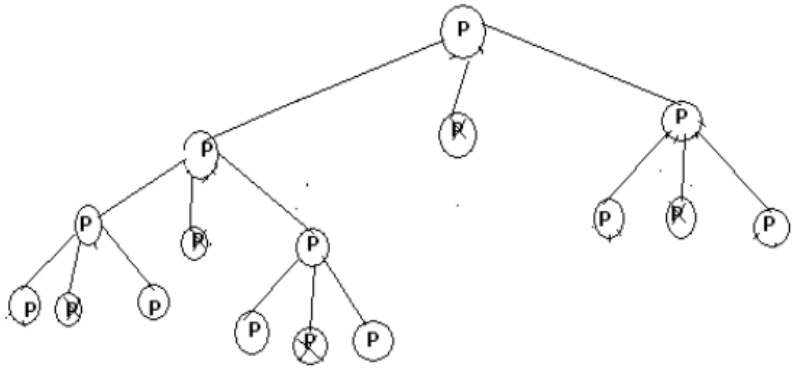
Add in (1)

Then total profit = 9000 + 4800

=13800 Rs.

- For example:- If every member has put 3 member for his chain then only 2 members of them can forward their chain then find the total profit starting price is 500 Rs.. Total member is 16 and starting commission is 20% of 500 Rs.

Ans:-



Since Starting Price = 500 Rs.
Since Starting Commission is 20% of 500 Rs.
THEN starting commission= 100 Rs
Profit of S1 = 500 Rs
Profit of S2 = 1500 -100 = 1400 Rs
Profit of S3 = 3000-400= 2600 Rs
Profit of S4 = 3000-400= 2600 Rs
Total Profit = 7100 Rs.

By his methodology:-

Total member = 15

We know Total member = $1+\left(\frac{G_1^{n-1}-1}{G_1-1}\right)G$

Since G = 3; G_1 = 2 then $1+\left(\frac{2^{n-1}-1}{2-1}\right)3 = 16$

⇨ $3.2^{n-1} - 3 = 15$

⇨ $3.2^{n-1} = 18$

⇨ R=6

⇨ $3.2^{n-1} = 12$

⇨ $2^{n-1}=4$

⇨ n-1=2

⇨ n=3

Now some part of profit = $P + GP\left(\frac{G_1^{n-1}-1}{(G_1-1)}\right) - \left[\frac{G_1^{n+1}-G_1)}{(G-1)^3} - \frac{nG_1}{(G_1-1)^2} - \frac{n(n-1)}{2(G_1-1)}\right]C$

Since P = 1000; G = 3; G_1 = 2; n = 3; C= 200;

Then total profit = $500+3(500)\left(\frac{2^{3-1}-1}{(2-1)}\right) - \left[\frac{(2^{3+1}-2)}{(2-1)^3} - \frac{3(2)}{(2-1)^2} - \frac{3(3-1)}{2(2-1)}\right]100$

=500 + 1500 (3) –[14 – 6 - 3](100)

=500+4500-500 = 4500 Rs. _____(1)

Now $I = \frac{R}{G_1 - 1}$

Since R = 6; $G_1 = 2$

Then $I = \frac{6}{2-1} = 6$

I = 6

Since 6 > 3

⇨ I > G

Then find $X = \frac{I}{G}$

Now $\frac{I}{G} = \frac{6}{3} = 2$

So X = 2

⇨ $2 = X = G_1$

Then by case 3.2; add (IP – XC-2C) in (1)

Now IP – XC-2C = 6(500) – 2(100)-200

=3000 – 400

=2600 Rs.

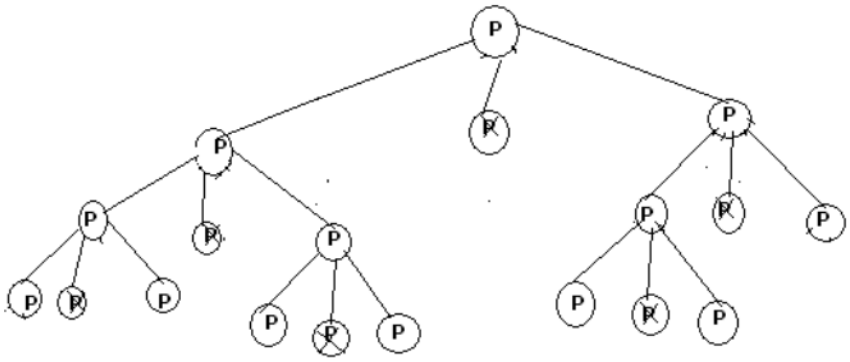
Add in _____ (1)

Then total profit = 4500 + 2600

=7100 Rs.

- For example:- If every member has put 3 member for his chain then only 2 members of them can forward their chain then find the total profit starting price is 600 Rs.. Total member is 19 and starting commission is 10% of 600 Rs.

Ans:-



_____S1

_____S2

_____S3

_____S4

Profit of S1 = 600 Rs

Profit of S2 = 1800 -60 = 1740 Rs

Profit of S3 = 3600-120-120= 3120 Rs

Profit of S4 = 5400-180-120= 5100 Rs

Total Profit = 10560 Rs.

By his methodology:-

Total member = 19

We know Total member = $1+\left(\frac{G_1^{n-1}-1}{G_1-1}\right)G$

Since G = 3; $G_1 = 2$ then $1+\left(\frac{2^{n-1}-1}{2-1}\right)3 = 19$

⇨ $3.2^{n-1} - 3 = 18$

⇨ $3.2^{n-1} = 21$

⇨ R=9

⇨ $3.2^{n-1} = 12$

⇨ $2^{n-1}=4$

⇨ n-1=2

⇨ n=3

Now some part of profit = $P + GP\left(\frac{G_1^{n-1}-1}{(G_1-1)}\right) - \left[\frac{G_1^{n+1}-G_1)}{(G-1)^3} - \frac{nG_1}{(G_1-1)^2} - \frac{n(n-1)}{2(G_1-1)}\right]C$

Since P = 1000; G = 3; $G_1 = 2$; n = 3; C= 200;

Then total profit = $600+3(600)\left(\frac{2^{3-1}-1}{(2-1)}\right) - \left[\frac{(2^{3+1}-2)}{(2-1)^3} - \frac{3(2)}{(2-1)^2} - \frac{3(3-1)}{2(2-1)}\right]60$

=600 + 1800 (3) –[14 – 6 - 3](60)

=6000-540

=5460 Rs. _____(1)

Now $I = \frac{R}{G_1 - 1}$

Since R = 9; G_1 = 2

Then $I = \frac{9}{2-1} = 3$

I = 9

Since 9 > 3

⇨ I > G

Then find $X = \frac{I}{G}$

Now $\frac{I}{G} = \frac{9}{3} = 3$

So X = 3

⇨ 3>2

⇨ $X > G_1$

Now find out $\frac{X}{G} = Y$ .....

Now $\frac{3}{3} = 1$

So Y = 1

Since 1 < 2

$Y < G_1$

Then by case 3.3; add (IP – XC-2YC) in __________ (1)

Now IP – XC-2YC = 9(600) – 3(60)

=5400-180-120

=5000 Rs.

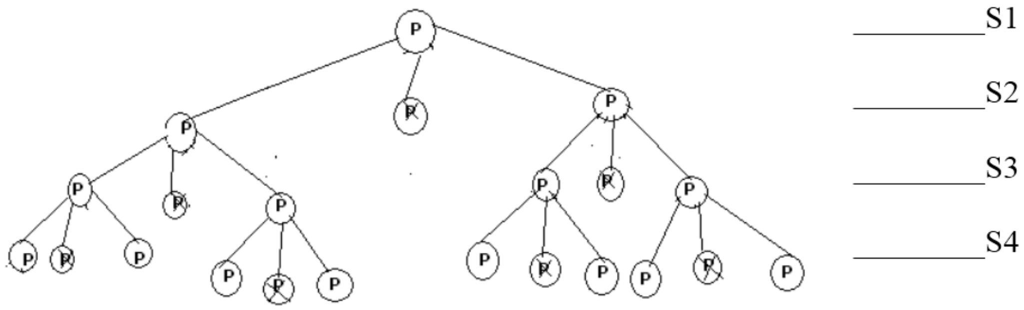
Add in _______ (1)

Then total profit = 5460 + 5100

=10560 Rs.

- For example:- If every member has put 3 member for his chain then only 2 members of them can forward their chain then find the total profit starting price is 1000 Rs.. Total member is 22 and starting commission is 10% of 1000 Rs.

Ans:-



Since Starting Price = 1000 Rs.

Since Starting Commission is 10% of 1000 Rs.

THEN starting commission= 100 Rs

He gains commission in S1 = 0 Rs

He gains commission in S2 = 100 Rs

He gains commission in S3 = 200 Rs

He gains commission in S4 = 300 Rs

Total commission = 600 Rs.

By his methodology:-

Total member = 22

We know Total member = $1 + \left(\frac{G_1^{\,n-1} - 1}{G_1 - 1}\right)G$

Since G = 3; G_1 = 2 then $1 + \left(\frac{2^{n-1} - 1}{2-1}\right)3 = 22$

⇨ $3.2^{n-1} - 3 = 21$

⇨ $3.2^{n-1} = 24$

⇨ $3.2^{n-1} = 3.2^{n-1}$

⇨ n-1 = 3

⇨ n = 4

Now total commission = $C\left(\frac{n(n-1)}{2}\right)$

Since P = 1000; G = 3; G_1 = 2; n = 3; C= 200;

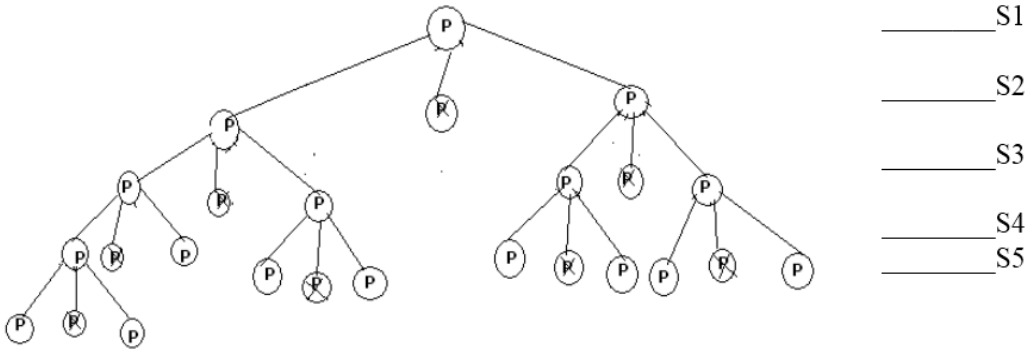
Then total profit = $(100)\left(\frac{4(4-1)}{2}\right)$-

$= \frac{(4)(3)}{2}(100)$

= 600 Rs.

For example:- If every member has put 3 member for his chain then only 2 members of them can forward their chain then find the total profit starting price is 500 Rs.. Total member is 25 and starting commission is 20% of 500 Rs.

Ans:-



Since Starting Price = 500 Rs.
Since Starting Commission is 20% of 500 Rs.
THEN starting commission= 100 Rs
He gains commission in S1 = 0 Rs
He gains commission in S2 = 100 Rs
He gains commission in S3 = 200 Rs
He gains commission in S4 = 300 Rs
Total commission = 600 Rs.

By his methodology:-

Total member = 22

We know Total member = $1+\left(\frac{G_1^{\,n-1}-1}{G_1-1}\right)G$

Since G = 3; G_1 = 2 then $1+\left(\frac{2^{n-1}-1}{2-1}\right)3=25$

⇨ $3.2^{n-1}-3=24$
⇨ $3.2^{n-1}=27$
⇨ R = 3
⇨ $3.2^{n-1}=24$
⇨ n-1 = 3
⇨ n = 4

Now total commission = $C\left(\frac{n(n-1)}{2}\right)$

Since P = 1000; G = 3; G_1 = 2; n = 3; C= 200;

Then total profit = $(100)\left(\frac{4(4-1)}{2}\right)-$

$=\frac{(4)(3)}{2}(100)$

= 600 Rs.

3. Conclusion

With this formula we can very easily find the profit or loss earned by a company with varying commission AND every member necessary not to create his own member. It is very useful to Multiple National Marketing Companies which do this type of business and this type of companies can find easily their profit or loss.

4. Acknowledgement

Dr. Sunil Mehta
HOD Mathematics, Khalsa College Patiala.

- Mr. Anil Jindal

Prof. Bits-Pilani Campus Rajasthan,

- Mr. Rakesh Kumar

Prof. Pbi. Uni. Patiala (PB)

- Mr. Gurmeet Singh

Prof. Mathematics Deptt. Khalsa College Patiala.

- Mrs. Nishu

Prof. Mathematics Deptt. Khalsa College Patiala.

- Mr. Sunil Singla

Principal High Sr. Sec. School Kalipur,
Dist. Mansa

- Mr. Harpreet Singh

Asst. Prof. HOD Mathematics Deptt GNC Budhlada.

- Miss Seema

HOD Mathematics Deptt. Krishna College Rali dist Mansa

- Mrs. Ekta Garg

Asst. Prof. Mata, Gurdev Kaur Memorical Educational Institute, Bareta.

- Mr. Happy Kumar

Asst. Prof. Mathematics Deptt GNC Budhlada.

- Mrs. Gurpreet Kaur

Asst. Prof. Mathematics Deptt GNC Budhlada.

- Mr. Sanjiv Singla

Asst. Prof. GNC Budhlada.

- Miss Nitika Singla

Asst. Prof Mathematics Deptt. GNC Budhlada

- Miss Anita Rani

Mathematics Teacher Govt Girl School Boha Dist Mansa

- Miss Manisha Rani

Teacher Manu Vatika, School Budhlada.g

5. Reference

1. Himanshu. “Chain system the formula” in “International journal of mathematics trends and technology”
2. Himanshu “Complex system the formula” in “International journal of science and research”
3. Himanshu “Chain system the formula with changeable commission” in “International journal of scientific research and education”
4. Google