Retirement/Death of a Partner

Question 1.

A, B and C were partners sharing profits in the ratio of 1/2, 2/5 and 1/10. Find the new ratio of the remaining partners if C retires.

Solution:

Old Ratio (A,B and C) = $\dfrac{1}{2} : \dfrac{2}{5} : \dfrac{1}{10}$ or $5 : 4 : 1$

As we can see, no information is given as to how A and B are acquiring C's profit share after his retirement, so the new profit sharing ratio between A and B is calculated just by crossing out the C's share. That is, the new ratio becomes 5: 4.

∴ New Profit Ratio (A and B) = 5:4

Question 2.

Ram, Mohan and Sohan were partners sharing profits in the ratio of 1/5, 1/3 and 7/15 respectively. Sohan retires and his share was taken up by Ram and Mohan in the ratio of 3:2. Find out the new ratio.

Solution:

Old Ratio (Ram, Mohan and Sohan) = $\dfrac{1}{5} : \dfrac{1}{3} : \dfrac{7}{15}$ or $3 : 5 : 7$

Sohan's Profit Share = $\dfrac{7}{15}$

Ram and Mohan decided to take his share in the ratio of 3:2

Share of Sohan taken by Ram = $\dfrac{7}{15} \times \dfrac{3}{5} = \dfrac{21}{75}$

Share of Sohan taken by Mohan = $\dfrac{7}{15} \times \dfrac{2}{5} = \dfrac{14}{75}$

New profit share = Old profit share + share taken from Sohan

Ram's New Share = $\dfrac{3}{15} + \dfrac{21}{75} = \dfrac{15+21}{75} = \dfrac{36}{75}$

Mohan's New Share = $\dfrac{5}{15} + \dfrac{14}{75} = \dfrac{25+14}{75} = \dfrac{39}{75}$

∴ New profit Ratio(Ram and Mohan) = 36:39 or 12:13

Question 3.

From the following particulars, calculate new profit-sharing ratio of the partners:

a. Shiv, Mohan and Hari were partners in a firm sharing profits in the ratio of 5:5:4. Mohan retired his share was divided equally between Shiv and Hari.

b. P, Q and R were partners sharing profits in the ratio of 5:4:1. P retires from the firm.

Solution:

a. Old ratio (Shiv, Mohan and Hari) = 5:5:4

Mohan's Profit share $= \dfrac{5}{14}$

His share is divided between Shiv and Had equally i.e in the ratio of 1:1

Share of Mohan takes by Shiv $= \dfrac{5}{14} \times \dfrac{1}{2} = \dfrac{5}{28}$

Share of Mohan takes by Hari $= \dfrac{5}{14} \times \dfrac{1}{2} = \dfrac{5}{28}$

New profit share = Old profit share + Share taken from Mohan

Shiv's New Share $= \dfrac{5}{14} + \dfrac{5}{28} = \dfrac{10+5}{28} = \dfrac{15}{28}$

Hari's New Share $= \dfrac{4}{14} + \dfrac{5}{28} = \dfrac{8+5}{28} = \dfrac{13}{28}$

∴ New profit share (Shiv and Hari) = 15:13

b. Old Ratio (P,Q and R) = 5:4:1

P's Profit Share $= \dfrac{5}{10}$

Since, no information is given as to how Q and R are acquiring P's profit share after his retirement, therefore the new profit sharing ratio between Q and R is calculated just by crossing out the P's share. That is, the new ratio becomes 4 : 1
∴ New profit Ratio (Q and R) =4:1

Question 4.

A, B and C were partners sharing profits in the ratio of 4:3:2. A retires, assuming B and C will share profit in the ratio of 2:1. Determine the gaining ratio.

Solution:

Old Ratio (A,B and C) =4:3:2
New Ratio (B and C)=2:1

B's Gain $= \dfrac{2}{3} - \dfrac{3}{9} = \dfrac{6-3}{9} = \dfrac{3}{9}$

C's Gain $= \dfrac{1}{3} - \dfrac{2}{9} = \dfrac{3-2}{9} = \dfrac{1}{9}$

∴ Gaining Ratio = 3:1

Question 5.

Kangli, Mangli and Sanvali are three partners sharing profits in the ratio of 4:3:2. Kangli retires. Assuming Mangli and Sanvali will share profits in future in the ratio of 5:3, determine the gaining ratio.

Solution:

Old Ratio (Kangli, Mangli and Sanvali) =4:3:2
New Ratio (Mangli and Sanvali) = 5:3
Gaining Ratio = New Ratio - Old Ratio

Mangli's Gain $= \dfrac{5}{8} - \dfrac{3}{9} = \dfrac{45-24}{72} = \dfrac{21}{75}$

Sanvali's Gain $= \dfrac{3}{8} - \dfrac{2}{9} = \dfrac{27-16}{72} = \dfrac{11}{75}$

Gaining Ratio = 21:11

Question 6.

X, Y and Z are partners sharing profits in the ratio of 1/2, 3/10, and 1/5. Calculate the gaining ratio of remaining partners

when Y retires from the firm.

Solution:

Calculation of Gaining Ratio

$$X \; : \; Y \; : \; Z$$

Old Ratio $= \dfrac{1}{2} : \dfrac{3}{10} : \dfrac{1}{5}$

$$= \dfrac{5:3:2}{10}$$

New Ratio after Y's retirement = 5:2

Gaining share = New Share − Old share

X's Gain $= \dfrac{5}{7} - \dfrac{5}{10} = \dfrac{15}{70}$

Z's Gain $= \dfrac{2}{7} - \dfrac{2}{10} = \dfrac{6}{70}$

Gaining Ratio = 15:6 or 5:2

Question 7.

a. W, X, Y and Z are partners sharing profit and losses in the ratio of 1/3, 1/6, 1/3 and 1/6 respectively Y retire and W, X and Z decided to share the profit and losses equally in future .calculate gaining ratio

b. A, B and C are partners sharing profit and losses in the ratio of 4:3:2 C retires from the business. A is acquiring 4/9 of C's share and balance is acquired by B. Calculate the new profit-sharing ratio and gaining ratio.

Solution:

(a) Old Ratio (W, X, Y and Z) $= \dfrac{1}{3} : \dfrac{1}{6} : \dfrac{1}{3} : \dfrac{1}{6}$ or 2:1:2:1

New Ratio (W, X and Z) = 1:1:1

Gaining Ratio = New Ratio − Old Ratio

W's Gain $= \dfrac{1}{3} - \dfrac{2}{6} = \dfrac{2-2}{6} = 0$

X's Gain $= \dfrac{1}{3} - \dfrac{1}{6} = \dfrac{2-1}{6} = \dfrac{1}{6}$

Z's Gain $= \dfrac{1}{3} - \dfrac{1}{6} = \dfrac{2-1}{6} = \dfrac{1}{6}$

∴ Gaining Ratio = 0:1:1

(b) Old Ratio (A,B and C)=4:3:2

C's Profit Share =2/9

A acquires 4/9 of C's Share and remaining Share is acquired by B.

Share acquired by A $= \dfrac{2}{9} \times \dfrac{4}{9} = \dfrac{8}{81}$

Share acquired by B = C's Share−Share acquired by A $= \dfrac{2}{9} - \dfrac{8}{81} = \dfrac{10}{81}$

New profit share= Old Profit share +share acquired from C

A's New Share $= \dfrac{4}{9} + \dfrac{8}{81} = \dfrac{36+8}{81} = \dfrac{44}{81}$

B's New Share $= \dfrac{3}{9} + \dfrac{10}{81} = \dfrac{27+10}{81} = \dfrac{37}{81}$

∴ New Profit Ratio (A and B)=44:37

Gaining Ratio= New Ratio−Old Ratio

A's Gain $= \dfrac{44}{81} + \dfrac{4}{9} = \dfrac{44-36}{81} = \dfrac{8}{81}$

B's Gain $= \dfrac{37}{81} + \dfrac{3}{9} = \dfrac{37-27}{81} = \dfrac{10}{81}$

∴ Gaining Ratio=8:10 or 4:5

Question 8.

T Sita ,Geeta and Meeta were partners in a firm sharing profit in the of 7:6:7.Geeta retired and her share was divided equally between Sita and Meeta.

Calculate the new profit-sharing ratio of Sita and Meeta.

Solution:

Old Ratio (Sita, Geeta and Meeta)=7:6:7
Geeta's Profit Share=6/20
Her share is divided between Sita and Meeta equally i.e in the ratio of 1:1

Share of Geeta taken by Sita=$\dfrac{6}{20} \times \dfrac{1}{2} = \dfrac{6}{40}$

Share of Geeta taken by Meeta=$\dfrac{6}{20} \times \dfrac{1}{2} = \dfrac{6}{40}$

New Profit Share = Old Profit Share + Share taken from Geeta

Sita's New Share=$\dfrac{7}{20} + \dfrac{6}{40} = \dfrac{14-6}{40} = \dfrac{20}{40}$

Meeta's New Share=$\dfrac{7}{20} + \dfrac{6}{40} = \dfrac{14+6}{40} = \dfrac{20}{40}$

∴ New Profit Ratio(Sita and Meeta)=20:20 or 1:1

Question 9.

R, S and M are partners sharing profit in the ratio of 2/5, 2/5 and 1/5. M decides to retire from the business and his share is taken by R and S in the ratio of 1:2. Calculate the new profit-sharing ratio.

Solution:

Old ratio (R, S and M)= 2:2:1
M retires from the firm.

His Profit share =$\dfrac{1}{5}$

M's share taken by R and S in ratio of 1:2

Share taken by R: =$\dfrac{1}{5} \times \dfrac{1}{3} = \dfrac{1}{15}$

Share taken by S: =$\dfrac{1}{5} \times \dfrac{2}{3} = \dfrac{2}{15}$

New Ratio= Old Ratio + Share acquired from M

R's New Share:$\dfrac{2}{5} + \dfrac{1}{15} = \dfrac{6+1}{15} = \dfrac{7}{15}$

R's New Share:$\dfrac{2}{5} + \dfrac{2}{15} = \dfrac{6+2}{15} = \dfrac{8}{15}$

∴ New Profit (R and S)=7:8

Question 10.

A, B, C and D were partners in a firm sharing profit in 5:3:2:2 ratio. B and C retired from the firm. B's share was acquired by D and C's share was acquired by A. Calculate new profit-sharing ratio of A and D.

Solution:

Old Ratio (A, B, C and D)=5:3:2:2

B's Profit Share=$\dfrac{3}{12}$

C's Profit Share=$\dfrac{2}{12}$

B 'Share was acquired by D and C's Share was acquired by A.

∴ D's New Share=D's Old Share + Share of B $= \dfrac{2}{12} + \dfrac{3}{12} = \dfrac{5}{12}$

A's New Share=A's Old Share + Share of C $= \dfrac{5}{12} + \dfrac{2}{12} = \dfrac{7}{12}$

∴ New Profit Ratio (A and D) = 7:5

Question 11.

A, B, and C were partners in a firm sharing profit in the ratio of 8:4:3. B retired and his share is taken up equally by A and C. Find the new profit-sharing ratio.

Solution:

Old Ratio (A, B and C)= 8:4:3
B retires from the firm.
B's Share taken by A and C in ratio of 1:1

Share taken by A= $\dfrac{4}{15} \times \dfrac{1}{2} = \dfrac{2}{15}$

Share taken by C= $\dfrac{4}{15} \times \dfrac{1}{2} = \dfrac{2}{15}$

New Ratio= Old Ratio + Share acquired from B

A's New Share: $\dfrac{8}{15} + \dfrac{2}{15} = \dfrac{10}{15} = \dfrac{2}{3}$

C's New Share: $\dfrac{3}{15} + \dfrac{2}{15} = \dfrac{5}{15} = \dfrac{1}{3}$

∴ New Profit (A and C)=2:1

Question 12.

A, B and C are partners in a firm sharing profit and losses in the ratio of 4:3:2. B decides to retire from the firm. Calculate new profit-sharing ratio of A and C in the following circumstance:

a. If B gives his share to A and C in the original ratio of A and C.

b. If B gives his share to A and C in equal proportion.

c. If B gives his share to A and C in the ratio of 3:1.

d. If B gives his share to A only.

Solution:

Old Ratio (A, B and C)=4:3:2
B retires from the firm.

His Profit Share= $\dfrac{3}{9}$

(a) B gives his share to A and C in their original ratio.
origninal Share (A and C)=4:2

Share taken by A= $\dfrac{3}{9} \times \dfrac{4}{6} = \dfrac{12}{54}$

Share taken by A= $\dfrac{3}{9} \times \dfrac{2}{6} = \dfrac{6}{54}$

New Ratio = Old Ratio + Share acquired from B

A's New Share= $\dfrac{4}{9} + \dfrac{12}{54} = \dfrac{24+12}{54} = \dfrac{36}{54}$

C's New Share= $\dfrac{2}{9} + \dfrac{6}{54} = \dfrac{12+6}{54} = \dfrac{18}{54}$

∴ New Profit Ratio (A and C)=36:18 or 2:1

(b) B givens his Share to A and C in equal proportion.

Share taken by A= $\dfrac{3}{9} \times \dfrac{1}{2} = \dfrac{3}{18}$

Share taken by C= $\dfrac{3}{9} \times \dfrac{1}{2} = \dfrac{3}{18}$

New Ratio = Old Ratio + Share acquired from B

A's New Share= $\dfrac{4}{9} + \dfrac{3}{18} = \dfrac{8+3}{18} = \dfrac{11}{18}$

C's New Share= $\dfrac{2}{9} + \dfrac{3}{18} = \dfrac{4+3}{18} = \dfrac{7}{18}$

∴ New Profit Ratio (A and C)=11:7

(c) B givens his Share to A and C in the Ratio 3:1

Share taken by $A = \dfrac{3}{9} \times \dfrac{3}{4} = \dfrac{9}{36}$

Share taken by $C = \dfrac{3}{9} \times \dfrac{1}{4} = \dfrac{3}{36}$

New Ratio = Old Ratio + Share acquired from B

A's New Share $= \dfrac{4}{9} + \dfrac{9}{36} = \dfrac{16 + 9}{36} = \dfrac{25}{36}$

C's New Share $= \dfrac{2}{9} + \dfrac{3}{36} = \dfrac{8 + 3}{36} = \dfrac{11}{36}$

∴ New Profit Ratio (A and C) = 25:11

(d) B givens his Share to A only.

A's New Share = A's Old Share + Share of B $= \dfrac{4}{9} + \dfrac{3}{9} = \dfrac{7}{9}$

C's New Share $= \dfrac{2}{9}$

∴ New Profit Ratio (A and C) = 7:2

Question 13.

A, B and C are partners sharing profit in the ratio of 5:3:2 C retires and his share is entirely taken by A. calculate new profit-sharing ratio of A and B.

Solution:

Old Ratio (A, B and C) = 5:3:2

C retires from the firm

His Profit Share $= \dfrac{2}{10}$

C's Share taken by A in entriety

New Ratio = Old Ratio + Share acquired from C

A's New Share: $\dfrac{5}{10} + \dfrac{2}{10} = \dfrac{2}{10}$

B's New Share: $\dfrac{3}{15} + 0 = \dfrac{3}{10}$

∴ New Profit (A and B) = 7:3

Question 14.

A, B and C are partners in the firm sharing profit in the ratio of 5:3:2 respectively B retire and his share is taken up by A and C in the ratio of 2:1. Then immediately ,D is admitted for 25% share of profit, half of which was gifted by A and remaining share was taken by D equally from A and C. Calculate new profit-sharing ratio after D's admission.

Solution:

Old Profit Sharing Ratio amongst Partner's (A, B and C) = 5:3: 2

B retires and his share was taken by A and C in ratio of 2:1

Gaining Ratio of A and C is 2:1

A's old Share $= \dfrac{5}{10}$

Share acquired from $B = \dfrac{3}{10} \times \dfrac{2}{3} = \dfrac{6}{30}$

New Share of A $= \dfrac{5}{10} + \dfrac{6}{30} = \dfrac{21}{30}$

C's old Share $= \dfrac{2}{10}$

Share acquired from $B = \dfrac{3}{10} \times \dfrac{1}{3} = \dfrac{3}{30}$

New Share of C $= \dfrac{2}{10} + \dfrac{3}{30} = \dfrac{9}{30}$

New ratio between A and C is 21:9 or 7:3

After this D is admitted for 25% Share

Half of this 25% was gifted by A and remaining half was provided by A and C equally.

It means 75% (50%+1/2 of remaining 50%) of 25%(given to D) was actually given by A and rest 25% was given by C.

Share acquired D from $A = \dfrac{1}{4} \times \dfrac{3}{4} = \dfrac{3}{16}$

Share acquired from $C = \dfrac{1}{4} \times \dfrac{1}{4} = \dfrac{1}{16}$

A's New Share $= \dfrac{7}{10} - \dfrac{3}{16} = \dfrac{112 - 30}{160} = \dfrac{82}{160}$

C's New Share $= \dfrac{3}{10} - \dfrac{1}{16} = \dfrac{48 - 10}{160} = \dfrac{38}{160}$

D's Share $= \dfrac{1}{4} = \dfrac{40}{160}$

∴ New Ratio = 41:19:20