MBA PIONEER 2024

QUANTITATIVE APTITUDE

DPP: 4

Ratio & Proportion 2

Q1 The speeds of three cars are in the ratio 5: 3: 4. The ratio between the times taken by these cars to travel the same distance is

(A) 5: 3: 4 (B) 4: 3: 5

(C) 15: 20: 12 (D) None of these

Q2 A varies directly to B when C is constant and directly to the square of C when B is constant. When B = 1 and C = 3, A = 108. What will be the value of C when A = 4056 and B = 2 ?

(A) 11 (B) 12

(C) 13 (D) 14

Q3 Three partners A, B and C share profits such that 3 times the share of A is equal to 2 times the share of B which is equal to 4 times the share of C. Find the ratio of their shares.

(A) 3 : 2 : 4 (B) 3 : 6 : 4

(C) 4 : 2 : 3 (D) 4 : 6 : 3

Q4 6 years ago, the ratio of the ages of A and B was 13: 17 respectively. The difference between the age of A after 4 years and the age of B after 5 years is 9 years. Find the present age of A.

(A) 30 years (B) 34 years

(C) 32 years (D) 36 years

Q5 Anu, Vinu and Punit started a business with initial investment Rs. 8000, Rs. 12000 and Rs. 10000, respectively and after 1 year, Anu and Punit again invested Rs. 2000 each, then what is the ratio of share of profit of Anu, Vinu and Punit after two years?

(A) 9: 12: 7 (B) 9: 10: 11

(C) 9: 12: 11 (D) 8:12:11

Q6 The product of two fractions is $\frac{7}{10}$ and when first fraction is divided by second fraction, the result is $\frac{35}{32}$. What is the smaller fraction?

(A) $\frac{4}{5}$

(B) $\frac{3}{5}$

(C) $\frac{6}{7}$

(D) $\frac{7}{8}$

Q7 A and B enter a partnership with initial investment in the ratio of 8: 7 and after two months, C joins them with initial investment equal to $\frac{3}{2}$ of investment of A. At the end of the year, the sum of share of profit of A and C is Rs. 63000, then what is the share of profit of B?

Q8 A, B and C entered into a partnership. The respective ratio of the investment of A to that of C is 4:7 and the ratio of the investment of B to C is 3:5 respectively. All of them invested for an equal period of time. Find B's profit share, given that the total profit earned by them is Rs. 10640.

Q9 Aleksandar and Binny started a business in partnership investing Rs. 24000 and Rs. 16000 respectively. After six months, Charli joined them with Rs. 20000. What will be Binny's share (in Rs.) in the total profit of Rs. 32,890 earned at the end of 2 years from the starting of the business?

(A) 5986 (B) 6895

(C) 8695 (D) 9568

Q10 The present ages of A and B are 18 years and 27 years respectively. The ratio of the age of A, X years later and the age of B, Y years later will be 5: 6 respectively. Which of the following options is true for the values of X and Y, if X + Y = 10?

(A) X=2Y+ 1 (B) Y = 2X + 1
(C) X = 2Y-1 (D) Y = 2X-1

Q11 Lokendra starts a business with the capital of Rs15000 after 6 months Mukesh joined the business with the capital of Rs 20000 and next after 3 months Suresh joined them with a certain amount. If at the end of the years the share of profit is divided into the ratio respectively 15:10:6, then the amount invested by Suresh is:

Q12 Mark and Stark start a business together and invest $50,000 and $70,000 respectively. Stark is an active partner and he gets 15% of the profit separately. If their business yields them a total of $60,000 as profit, what is the share of Stark at the end of a year (in $)?

Q13 Mr. Buffet and Mr. Stark start a Robotics company by investing $14000 and $21000 respectively. Their agreement is to share half of the total profit equally and then share the remaining half in the ratio of their capitals. If they had shared the entire profit in the ratio of their capitals, Mr. Stark would have got $1500 more than what he would have got otherwise. What is the total Profit?

(A) $20000 (B) $30000
(C) $40000 (D) $50000

Q14 If x varies directly as $(y^3 - 6)$ and when y = 2 then x will be equal to 4. Find the value of x when y = 4

(A) 115 (B) 116
(C) 119 (D) 120

Q15 In Mithadesh, the cost of per kg of sugar varies inversely with the square of the quantity of sugar produced in a year. When 6 million tonnes is the annual production, the cost comes to Rs. 25/kg. What must have been the total production when the cost is Rs. 36/kg? (in million tonnes)

(A) 5 (B) 8.64
(C) 9 (D) 10

Q16 Ramya starts a company, and after 3 months, Ravi also joins the company. The initial investment of Ramya and Ravi is in the ratio of $3 : 2$, respectively. Ramya and Ravi receive Rs. _____ and Rs. _____, respectively, as profit after the completion of one year of the company.

(A) $2350,\ 1350$
(B) $1960,\ 980$
(C) $1330,\ 660$
(D) $1240,\ 310$

Q17 The price of the product varied in a manner in 4 years such that the ratio of prices in 2000 to 2001 is 3 : 5, 2001 to 2002 is 7 : 4 and 2002 to 2003 is 5 : 7. If the price of the product in 2001 is Rs.35000, what is the difference in the prices of the product in 2000 and 2003?

(A) 7000 (B) 8000
(C) 9000 (D) 10000

Q18 In a tea business, Amit is a working partner. Amit puts in Rs.7000 and Narendra puts in 3000, Amit received 37.5% of profit for managing the business and the rest is divided in proportion to their capitals. What is Amit's share of profit if the total profit is Rs. 440?

(A) Rs. 357.5 (B) Rs. 90
(C) Rs. 390 (D) Rs. 100

Q19 If 'a' is directly proportional to the square of 'b' and 'b' is inversely proportional to 'c', then which of the following is correct?
I: 'a' is inversely proportional to the square of 'c'.
II: 'ac' is directly proportional to 'b'.
(A) Both I and II
(B) Only II
(C) Only I
(D) Neither I nor II

Q20 Prerna started a business by investing 0.75 lakh. Mansee joins the business by investing 1 lakh after a few months. After how many months Mansee joined the business if at the end of the year profit was divided between Mansee and Prerna in the ratio of 13: 18?
(A) $5\frac{1}{2}$
(B) 5
(C) 7
(D) 6

Q21 5 years ago, Father's age was twice the age of his son at that time. 10 years from now, the ratio of age of son to father will become 8:13. What is the current age of son?
(A) 20 (B) 30
(C) 35 (D) 25

Q22 P and Q invested in a business in the ratio 4:7 respectively and for time periods in the ratio 21:16 respectively. If 10% of the total profit goes to charity and rest is distributed between P and Q according to their investments such that P's share is Rs 5400, then what is the total profit?
(A) Rs 8000 (B) Rs 10000
(C) Rs 12000 (D) Rs 14000

Q23 The weight of a solid cylinder varies directly with the square of the radius when the height is constant and varies directly with the height when the radius is constant. The weight of the solid cylinder is 15kg, its radius is 2m and its height is 3m. Find the weight of another such solid cylinder whose radius is 4m and height is 6m.
(A) 100 kg (B) 120 kg
(C) 140 kg (D) 160 kg

Q24 Centripetal force is directly proportional to the square of velocity when the radius is constant and inversely proportional to the radius when velocity is constant. The centripetal force is 13N when the velocity is 11m/s and radius is 121m. Find the centripetal force (in N) if the velocity is 7m/s and radius is 26m.
(A) 22.5 (B) 23.5
(C) 24.5 (D) 25.5

Q25 Ramu, Sumiyaa and Tara have started a small business by investing the capital of Rs. 4800, Rs. 5400, Rs. 8400 respectively and just after one year they make a profit of Rs. 18,600. If they divide $\frac{2}{3}^{rd}$ of the profit equally among themselves and the remaining in the ratio of their capitals, find the total profit of Tara.
(A) Rs. 3369.33 (B) Rs. 6933.33
(C) Rs. 9633.50 (D) Rs. 6639.50

Q26 Mr. Richard and Mr. Nadar invest $6000 and $7000, respectively in a business. Mr. Richard received $95 per month out of the profit as a remuneration for running the business and the rest of the profit is divided in proportion to the investments. If in a year, Mr. Richard totally receives $3054 then the amount received by Mr. Nadar will be ?
(A) 2233 (B) 3322

(C) 4433 (D) 3344

Q27 Three businessmen started a partnership by investing Rs. 8000, Rs. 10,000 and Rs. 15,000 respectively. After running the business for one year, they found that there is a loss of Rs. 4950. They decided to pay to make up that loss to undisturb their capitals. Find the average of the amount (in Rs.) they have to pay.

(A) 1560 (B) 1650
(C) 5610 (D) 6510

Q28 Ravi started a business with Rs.45,000. Bharat joined him 3 months later with Rs. 32,000. After 3 more months Ravi withdrew Rs.5,000 of his capital and 2 more months later, Bharat brought in Rs.13,000 more. At the end of the year, what will be the ratio in which they share the profits if Ravi receives 20% of profits as commission?

(A) 3:2 (B) 5:4
(C) 5:17 (D) 17:8

Q29 An expensive gem worth Rs. 10368 fell and broke into three pieces, the weights of which are proportional to 1: 2: 3. The value of each gem is directly proportional to the square of its weight. Determine the loss occurred due to the breaking.

(A) Rs. 3624 (B) Rs. 4228
(C) Rs. 6336 (D) Rs. 7510

Q30 A, B and C ventured into a new business. A contributed Rs.10,000 for 6 months, B invested 16,000 for 5 months and C invested a certain sum for 8 months. C manages the entire business for which he takes 25% of the profit and the remaining profit is shared among A , B and C in the respective ratio of their cumulative investments. If at the end of the 8 months the profit realized was Rs. 20,000. Find the sum that C invested, if profit received by B is Rs. 4000.

(A) Rs 16,000 (B) Rs 24,000
(C) Rs 20,000 (D) Rs 25,000

Answer Key

Q1	(D)
Q2	(C)
Q3	(D)
Q4	(C)
Q5	(C)
Q6	(A)
Q7	24500
Q8	2940
Q9	(D)
Q10	(A)
Q11	24000
Q12	38750
Q13	(B)
Q14	(B)
Q15	(A)
Q16	(B)
Q17	(A)
Q18	(A)
Q19	(A)
Q20	(A)
Q21	(B)
Q22	(D)
Q23	(B)
Q24	(C)
Q25	(B)
Q26	(A)
Q27	(B)
Q28	(D)
Q29	(C)
Q30	(C)

Hints & Solutions

Q1 Text Solution:

Speed $\propto \frac{1}{\text{Time}}$

If Speed is 5 : 3 : 4 then time is in ratio of

$\frac{1}{5} : \frac{1}{3} : \frac{1}{4}$

= 12 : 20 : 15.

Q2 Text Solution:

A $\propto$ B, when C is constant

A $\propto C^2$, when B is constant

By concept of Joint variation,

A $\propto BC^2$

Thus, A = k. BC^2

By the conditions given in the question

$108 = k \times 1 \times 3^2$

So, k = 12

So now putting the values given

$4056 = 12 \times 2 \times C^2$,

$C^2 = 169$,

or, C = 13

Q3 Text Solution:

Let the profits be A, B and C.

Given, 3A = 2B = 4C = k (Lets say)

A = $\frac{k}{3}$; B = $\frac{k}{2}$; C = $\frac{k}{4}$

A : B : C = $\frac{k}{3} : \frac{k}{2} : \frac{k}{4}$;

Multiplying throughout by 12 (LCM of 3, 2 & 4) we get 4 : 6 : 3

Q4 Text Solution:

Let 6 years ago, age of A = 13x years and age of B = 17x years.

According to the question,

(17x+6+5)- (13x+6+4) = 9

4x+ 1 = 9

4x = 8

x = 2

The present age of A = 13x + 6 = 13 × 2+ 6 = 32

Ans. c

Q5 Text Solution:

Ratio of profit of Anu, Vinu and Punit

= (8000 × 1 + 10000 × 1): (12000 × 2): (10000 × 1 + 12000× 1)

= 9 : 12 : 11

Q6 Text Solution:

Let two fractions be x and y.

$$xy = \frac{7}{10}$$

And $\frac{x}{y} = \frac{35}{32}$

$$xx = \frac{35y}{32}$$

So, $\left(\frac{35y}{32}\right) \times y = \frac{7}{10}$

$$\Rightarrow y^2 = \frac{7}{10} \times \frac{32}{35}$$

$$\Rightarrow y^2 = \frac{16}{25}$$

$$\Rightarrow y = \frac{4}{5} = \frac{32}{40}$$

Thus, $x = \frac{7}{10} \times \frac{5}{4} = \frac{7}{8} = \frac{35}{40}$

Hence, smaller fraction $= y = \frac{4}{5}$

Ans. a

Q7 Text Solution:

Ratio of share of profit of A, B and C = (8 × 12): (7 × 12): ($\frac{3}{2}$ × 8 × 10) = 8: 7: 10

So, share of profit of B = 63000 × $\frac{7}{18}$ = Rs. 24500.

Q8 Text Solution:

Let the investment of A be Rs.20t

Investment of C = $\frac{7}{4} \times$ 20t = Rs.35t

Investment of B = $\frac{3}{5} \times$ 35t = Rs.21t

Ratio of investment of A: B: C = 20:21:35

Since, the time period of investment for all is same, profit will be shared in the ratio of their

investments.

Total profit = Rs. 10640

Hence, profit share of B = $\frac{21}{76}$ × 10640 = Rs.2940.

Q9 Text Solution:

Here we are given the investment of Aleksandar as Rs. 24000, investment of Binny as Rs. 16000, and investment of Charli as Rs.20000.

Now since Aleksandar and Binny started the business so they invested for the full 2 years. 1 year has 12 months.

So, 2 years = 24 months.

Therefore, Aleksandar and Binny invested for 24 months.

Investment of Aleksandar becomes ⇒ Rs. 24000 × 24

= Rs.5,76,000

Similarly, investment of Binny becomes ⇒ Rs.16000 × 24

= Rs. 3,84,000

Now, Charli joined them later after 6 months so his investment will be for (24-6) months i.e., 18 months

So, investment of Charli becomes

⇒ Rs. 20000 × 18 = Rs. 360000

Now let us calculate the ratio of their shares in investment for the company, we have the ratio as

Aleksandar: Binny: Charli =5,76,000: 384,000: 360000

Dividing all the ratios by common ratio 24000 we get,

Aleksandar : Binny : Charli = 24 : 16 : 15.

Total ratio is equal to 24 + 16 + 15 = 55.

So, Binny's Share = $\frac{16}{55}$ × Rs. 32,890 = Rs. 9568.

Q10 Text Solution:

Given that X + Y = 10... (1)

According to the Question,

$\frac{(18+X)}{(27+Y)} = \frac{5}{6}$

108+ 6X = 135 + 5Y

6X - 5Y = 27... (2)

After solving equation (1) and (2),

We get X = 7 and Y = 3

Therefore,

X = 7

X = 2 × 3 + 1

X = 2Y + 1 is the correct answer.

Q11 Text Solution:

Let the amount invested by Suresh be P.

Ratio of their profit share =15000 x 12 : 20000 x 6 : P x 3 = 15 : 10 : 6.

Therefore,

$\frac{2000 \times 6}{P \times 3} = \frac{10}{6}$

$\Rightarrow P = 24000$

Q12 Text Solution:

Ratio in which they get profits is 50,000 : 70,000 = 5 : 7

Stark gets 15% of 60,000 = $9000

Profit left which is to be divided in the ratio of 5:7.

= 60,000 – 9000 = $51000

Now Stark gets = $\frac{7}{5+7}$ × 51000 = $29750

So, total share of Stark = 9000 + 29750 = $38750.

Q13 Text Solution:

Buffet's Capital : Stark's capital = 14000 : 21000

2:3 Ratio of their profit.

Let the profit be = 2000x : 3000x

=> Total Profit= 5000x

Half is Divided Equally which means 2500x is divided as 1250x for Buffet and 1250x for Stark.

Now left 2500x is divided in ratio = 2:3

=> 1000x for Buffet and 1500x for Stark.

Stark's Profit =1250x + 1500x = 2750x

According to question:

3000x - 2750x = 1500

=> 250x = 1500

=> x = 6

=> Total Profit= 5000x = 5000 6 = $30,000.

Option (B) is correct.

Q14 Text Solution:

$x \propto y^3 - 6$

$\Rightarrow x = k(y^3 - 6)$, k is a constant.

Since x = 4 when y = 2.

$4 = k(2^3 - 6)$

$\Rightarrow 4 = 2k$

$\Rightarrow k = 2$

Therefore, when y = 4

$x = 2(4^3 - 6) = 2(64 - 6) = 2(58) = 116$

or, x = 116

Therefore, the required value of x is 116.

Q15 Text Solution:

As per the question,

Price (X) and production (Y^2) are inversely proportional.

So,

$\frac{X1}{X2} = (\frac{Y2}{Y1})^2$

$\frac{25}{36} = (\frac{P}{6})^2$

P = 5

Q16 Text Solution:

The ratio of profit share of Ramya and Ravi $= 3 \times 12 : 2 \times (12 - 3) = 2 : 1$

Out of all these options only option 2 will show the ratio as 2 : 1.

Hence option 2 will be the correct choice.

Q17 Text Solution:

The price of the product in 2000 must be = $\frac{3}{5}$ × 35000 = 21000

The price of the product in 2003 must be $\frac{4}{7} \times \frac{7}{5}$ × 35000 = 28000

So, the difference is Rs. 7000.

Q18 Text Solution:

Amit's share for managing the business = 37.5% × 440 = Rs. 165

Remaining profit = Rs. 275

Profit ratio = 7:3 (7000 : 3000 — ratio of amount invest)

Amit's share = $\frac{7}{10}$ × 275 = 192.5

Amit's total share = 192.5 + 165

= 357.5

Hence, [A] is correct.

Q19 Text Solution:

'a' is directly proportional to the square of 'b'

$a = mb^2$..... (1)

'b' is inversely proportional to 'c'

b = $\frac{n}{c}$ ..... (2)

or

c = $\frac{n}{b}$ ..... (3)

I:

From (1) and (2):

$a = m(\frac{n}{c})^2$

$a = \frac{mn^2}{c^2}$

$a = \frac{k}{c^2}$

'a' is inversely proportional to the square of 'c'.

II:

From (1) and (3):

$ac = mb^2 \times (\frac{n}{b})$

ac = mnb

ac = kb

'ac' is directly proportional to 'b'.

Hence, Both I and II are correct.

Q20 Text Solution:

Let's assume Mansee invested the amount for 'N' months.

Therefore, total investment made by Mansee = N lakh

Total investment made by Prerna = (0.75 × 12) lakh = 9

Hence the ratio in which profit will be divided between Mansee and Prerna = N: 9

Hence, $\frac{N}{9} = \frac{13}{18}$

=> N = $\frac{13}{18}$ × 9

=> N = $\frac{13}{26}$ = $6\frac{1}{2}$

Therefore, we can say that Mansee invested after $5\frac{1}{2}$ months.

Q21 Text Solution:

All age units are in years.

Let son's present age = x

Son's age 5 years ago = x - 5

From the condition, Father's present age must be 5 more than twice the age of son 5 years ago.

Father's present age = 5 + 2(x-5)

10 years from now,

Father's age = 10+5+2(x-5)= 15 + 2(x-5)= 2x + 5

Son's age = x + 10

From condition,

$\frac{x+10}{2x+5}=\frac{8}{13}$

=> 16x+40=13x+130

=>3x=90

=> x=30

Ans. b

Q22 Text Solution:

90% of the profit will be distributed in the ratio $(4 \times 21) : (7 \times 16) = 3 : 4$

Let the profit be Rs p.

So, $\left(\frac{3}{7}\right) \times \left(\frac{90p}{100}\right) = 5400$

Ans. d

$$p = 14000$$

Q23 Text Solution:

Let the weight, radius and height of the solid cylinder be w, r and h respectively.

Given that,

$w \propto r^2$ [when h is constant] .....(1)

$w \propto h$ [when r is constant] .....(2)

Combining equations (1) and (2) we can write that, $w \propto r^2h$ (using the concept of Joint Variation)

Now we can write that,

$w = (k)r^2h$ where k is the proportionality constant.

When, r = 2; h = 3 and w = 15, we get

$15 = (k)(2)^2 \times (3)$

or, $k = \frac{5}{4}$

When r = 4, h = 6, $k = \frac{5}{4}$

Then, $w = kr^2h$

$= \frac{5}{4} \times 4 \times 4 \times 6$

= 120

Therefore, the required weight of another such cylinder is 120 kg.

Q24 Text Solution:

Let the centripetal force, velocity and radius be F, v and r respectively.

Given that,

$F \propto v^2$ [when r is constant] .....(1)

$F \propto \frac{1}{r}$ [when v is constant] .....(2)

Combining equation (1) and (2) we can write that, $F \propto \frac{v^2}{r}$ (using the concept of Joint Variation)

Now we can write that,

$F = (k) \frac{v^2}{r}$ where k is the proportionality constant

When F = 13N, v = 11m/s and r = 121m, then

$13 = k \times \frac{11 \times 11}{121}$

or, k = 13

When v = 7, r = 26 and k = 13, then

$F = 13 \times \frac{7 \times 7}{26}$

or, F = 24.5N

Therefore, the required centripetal force is 24.5N.

Q25 Text Solution:

Ramu invested = Rs. 4800 for a year

Sumiyaa invested = Rs. 5400 for a year

Tara invested = Rs. 8400 for a year

Ramu's total investment = Rs. 4800 × 12

Sumiyaa's total investment = Rs. 5400 × 12

Tara's total investment = Rs. 8400 × 12

Ratio of partnership = 4800 × 12 : 5400 × 12 : 8400 × 12

= 8 : 9 : 14

Profit they divided among themselves = $\frac{2}{3}$ × 18,600

= Rs. 12,400

Profit of each partner = $\frac{12,400}{3}$ = Rs. 4133.33

Profit which they divided in the ratio of their capitals

= (1 – $\frac{2}{3}$) × 18,600

= Rs. 6200

So, Ramu's share = 6200 × $\frac{8}{8+9+14}$ = Rs. 1600

Sumiyaa's share = 6200 × $\frac{9}{8+9+14}$ = Rs. 1800

Tara's share = 6200 × $\frac{14}{8+9+14}$ = Rs. 2800

Hence, the total profit of Tara = 2800 + 4133.33 = Rs. 6933.33

Q26 Text Solution:

Let the annual profit be Rs. x.

Then, (x - \$95 $\times 12$), i.e., (x - \$1140) will be distributed between Mr. Richard and Mr. Nadar as their shares of profit.

Ratio of profits = Ratio of investments (Because the time period is the same).

So, Mr. Richard: Mr. Nadar = 6000 : 7000 = 6 : 7

Mr. Richard 's share = 1140 + (x - 1140) × $\frac{6}{13}$

=> 1140 + (x - 1140) × $\frac{6}{13}$ = 3054

=> x - 1140 = 4147

Mr. Nadar's share = $\frac{7}{13}$ × (x - 1140)

= $\frac{7}{13}$ × 4147

= \$ 2233

Q27 Text Solution:

Given, 3 businessmen, say A, B and C, started a partnership business by investing Rs. 8000, Rs. 10,000 and Rs. 15,000 respectively for a year.

Ratio of partnership = 8,000 × 12 : 10,000 × 12 : 15,000 × 12

= 96,000 : 1,20,000 : 1,80,000

= 8 : 10 : 15

The sum of ratio = 8 + 10 + 15 = 33

Loss incurred = Rs. 4950

A should pay = $\frac{8}{33}$ × 4950 = 1200

B should pay = $\frac{10}{33}$ × 4950 = 1500

C should pay = $\frac{15}{33}$ × 4950 = 2250

Hence, the required average = $\frac{1200+1500+2250}{3}$

= Rs. 1650.

Q28 Text Solution:

Here, for each individual, the capital was not the same for the entire period his money was in the business. So, the term of the ratio for a person will be the sum of products of investment multiplied by the time period for different parts of the year.

Ravi has Rs. 45,000 for 6 months and then since he withdrew Rs. 5,000, so he had only 40, 000 for the rest of the 6 months. His term of the ratio will be

(45,000 × 6) + (40,000 × 6) = Rs. 5,10,000

Bharat joined with Rs. 32,000 which remained unchanged for 5 months and then he brought in 13, 000 more. So, he had 45, 000 for 4 months only as he joined 3 months after the business began. His term of the ratio will be

(32,000 × 5) + (45,000 × 4) = 3,40,000

Hence, the ratio of shares of the profit will be 5,10,000: 3,40,000 = 3 : 2.

Let the total profits be x.

Then, Ravi will receive 20% of x or 0.2x as commission

Amount Left for distribution = 0.8x

Amount Ravi will get from remaining profits = $\frac{3}{5}$ × 0.8x = 0.48x

Total amount with Ravi = 0.2x + 0.48x = 0.68x.

Amount with Bharat = x - 0.68x = 0.32x

Ratio of amount received = $\frac{0.68x}{0.32x}$ = $\frac{17}{8}$

Option D is correct.

Q29 Text Solution:

Given, $V \propto w^2$;

$V = kw^2$

Let the weights be x, 2x and 3x and the respective values be V_1, V_2 and V_3.

Total weight = 6x and Total Value be V.

$V = k(36x^2) = 10368$

or, $kx^2 = 288$

$V_1 = kx^2$;

$V_2 = k(4x^2)$;

$V_3 = k(9x^2)$

Therefore,

$V_1 + V_2 + V_3 = 14kx^2$ and

$V = k(36x^2)$

Loss = $36kx^2 - 14kx^2 = 22kx^2 = 22 \times 288 = 6336$.

Q30 Text Solution:

25% of Profit to C (for being working partner)

75% of Profit a shared among 3 according to their equivalent capital ratio

C, for working, will get = 25% of 20,000 = Rs. 5,000

Remaining profit = 20,000-5000 = Rs. 15,000

Equivalent Capital Ratio of A, B & C respectively

(10,000 × 6) : (16,000 × 5) : (x × 8)

= 60,000 : 80,000 : 8x

Therefore,

$\frac{80,000}{60,000+80,000+8x} \times 15,000 = 4000$

$\Rightarrow$ 3,00,000 = 1,40,000 + 8x

$\Rightarrow$ 1,60,000 = 8x

$\Rightarrow$ x = Rs. 20,000

Amount invested by C is Rs. 20,000.