1.Explanation:

Solution:

Cost price — 17,500 + 2,500 = Rs. 20,000

S.P. = Rs. 22,500

Profit = 22,500 – 20,000 ⇒ Rs. 2,500

Profit % = $\left(\frac{2,500}{20,000} \times 100\right)\% = 12.5\%$

2. Explanation:

Solution:

Profit ratio of A to B = $(X \times 12) : (3X \times 6) = 12X: 18x = 2: 3$

So, profit of A = $16480 \times \frac{2}{5} = 6592\ Rs.$

And, profit of B = $16480 \times \frac{3}{5} = 9888 Rs.$

Required difference = 9888 – 6592 = 3296Rs.

3.

3.Explanation:

Solution:

Let the CP of fan be Rs. 100x

Then MP = Rs.100x + $\frac{20}{100} \times 100x = 100x + 20x = 120x$

SP = 120x - 120x x $\frac{30}{100}$ = Rs. (120x – 36x) = Rs.84x

ATQ,

84x = Rs.420

So, 100x = $\frac{420}{84} \times 100 = Rs. 500$

4. Explanation

Let the C.P of chair be 100x.

The, S.P for Amit = C.P for Rahul = 100x + 20% of 100x= 100x+20x= 120x

S.P for Rahul = C.P for Sanjiv = 120 + 30% of 120 = 120x + 36x = 156x

S.P for Sanjay = C.P for Dev = 156x + 50% of 156x = 156x + 78x = 234x

ATQ,

C.P for Dev – C.P for Amit = 2680

So, 234x – 100x = 2680

134x = 2680

So, x = 20

So, Rahul pays 120x = 120 * 20 = Rs.2400 to Amit.

5. Explanation

Solution:

Ratio of investment of A, B and C =
$(12000 \times 12): (20{,}000 \times 4 + 16000 \times 8) + (24000 \times 4 + 30000 \times 8)$
$(12 \times 12): (20 \times 4 + 16 \times 8): (24 \times 4 + 30 \times 8)$
$(144): (80 + 128): (96 + 240)$
$(144): (208): (336)$
$9: 13: 21$
As, the total profit =Rs.8600
So, share of B = $8600 \times \frac{13}{43} = 200 \times 13 = Rs.2600$

6.**Explanation:**

Solution:

At 20% loss, selling price of fan = $2000 \times \frac{80}{100} = Rs.1600$
At 20% profit, selling price of chair = $1600 \times \frac{120}{100} = 16 \times 120 = Rs.1920$
So, overall loss = 2000 – 1920 = Rs.80

7. **Explanation:**

Let the Cost price of item be 100x
So, after 20% loss, S.P of item = 100x – 20% of 100x = 80x
And, it is given that
80x = 1600
So, x = 20
So, cost price of item = 2000
After 30% profit,
S.P of item = 2000 + 30% of 2000 = 2000+ 600 = Rs.2600

8. Explanation:

Total investment of Elon in 2 years = 2400 + 2400 = Rs. 4800
Total investment of Alex in 2 years = 3200 + 3200 = Rs. 6400
Total investment of Mike in 1 years = 3500 + 3500 = Rs. 3500
Ratio of profit share of Elon, Alex and Mike = 48 : 64 : 35
So, profit share of Elon = $\frac{48}{147} \times 5880 = Rs.1920$

9. . **Explanation:**

Amount invested by Abhishek $= 45000 \times \frac{100}{112.5} = Rs.40000$
Ratio of profit share of Sameer and Abhishek =
$= \frac{45000\times1+50000\times1}{40000\times1+20000\times1} = \frac{19}{12}$
So, required difference $= 310000 \times \frac{7}{31}$
$= Rs.70000$
:

10. **Explanation:**

Neeraj got 20% profit
So, S.P. = $3000\times \frac{120}{100}$ = Rs. 3,600
He again buys an article and got 25% loss
So, S.P. = $3{,}600 \times \frac{75}{100} = Rs.2{,}700$
Total loss = initial c.p. − final s.p.
= 3,000-2,700 = Rs 300

11. . **Explanation:**

Solution:
Total cost price = $5{,}840 + 360 = Rs.6{,}200$
Profit = $6{,}500 - 6{,}200 = Rs.300$
Profit % = $\frac{300}{6{,}200} \times 100 \approx 5\%$

12. . **Explanation:**

Let the initial investment of P, Q and R be Rs. $3x, 5x, and\ 1x$
Their profit sharing ratio
$3x \times 5 + 6x \times 7 : 5x \times 5 + 3x \times 7 : 1x \times 12$
$57x : 46x : 12x$
$57x + 46x + 12x = 3{,}450$
115x = 3,450
Profit earned by R = $\frac{3{,}450}{115x} \times 12x = Rs.360$

13.**Explanation:**

Price at which Shivam purchased the bike = $80{,}000 \times \frac{120}{100}$

= Rs.96,000

So, price at which Adarsh purchased the bike = $(96{,}000 + 4{,}000) \times \frac{(100-18)}{100}$

= Rs.82,000

14. **Explanation:**

Solution:

Amit : Deepak

Initial investment

3 : 1

3×8 : 1×12

24 : 12

2 : 1

Now , 1 unit = Rs 8000

So,(2+1) units =3 units =3×8000 =Rs 24000

15. **Explanation:**

Let the Cost price of the article be Rs. x.
Then, Selling price = Rs. 0.9x
A.T.Q.:
⇒ 0.9x + 125 = 115% of x
⇒ 0.9x + 125 = (23/20)x
⇒ 18x + 2500 = 23x
⇒ 5x = 2500
⇒ x = Rs. 500 = Cost Price of the article

16. . **Explanation:**

Let the cost price of a raspberry be ₹x.
Then, selling price in first condition = (x) + (x) × 18% = x + 0.18x = 1.18x
And selling price in second condition = (x) + (x) × 38% = x + 0.38x = 1.38x
Now, as per question,
Selling price in first condition + ₹1 = Selling price in second condition
⇒ 1.18x + 1 = 1.38x
⇒ 1.38x – 1.18x = 1
⇒ 0.2x = 1
⇒ x = 1/0.2 = 5
Therefore, selling price in second condition = 1.38 × 5 = ₹6.9

17. **Explanation:**

Let the S.P of 1st watch be x then S.P of 2nd watch be 5000 – x
Now, C.P of 1st watch = S.P of 2nd watch = 5000 – x
Loss in 1st watch = 33.33% = 1/3
S.P of 1st watch = (5000 – x) – [(5000 – x) 1/3]
x = (15000 – 3x – 5000 + x)/3
5x = 10000
x = 2000
Now S.P of 2nd watch = 5000- 2000 = 3000
Profit = 60% so, C.P of 2nd watch = 3000 × 100/160 = Rs 1875
Therefore, total C.P = 3000 + 1875 = Rs 4875
Total Profit = 5000 – 4875 = Rs 125

18. . **Explanation:**

$25\% = \frac{1}{4}$

CP : SP : MP

4 : 5

3 : 4

12 : 15 : 20

CP : SP = 12 : 15

19. **Explanation:**

$\text{MP of Refrigerator} = \frac{3675 \times 100}{75}$

= Rs. 4900

If Refrigerator sold without discount,

Then

$\text{CP} = \frac{4900 \times 100}{140}$

= 3500 Rs.

20. Explanation:

Time duration of Mohit = 12 months
Time duration of Rohit = (12 - m)
Same as that of Puneet = (12 - m)
Mohit : Rohit : Puneet
100000 ×12 : 120000(12-m) : 140000(12-x)

$$\frac{120}{12(12-m)} = \frac{20}{18}$$

9 = 12 – m
m = 3
hence, 3 months is the correct answer.

21. . Explanation:

$$\frac{CP}{MP} = \frac{100-D\%}{100+P\%} = \frac{100-30}{100+5} = \frac{70}{105}$$

CP = 70, MP = 105

$$x = \frac{MP-CP}{CP} = \frac{105-70}{70} = \frac{35}{70}$$

$$x\% = \frac{35}{70} \times 100 = 50\%$$

22. Explanation:

Let total capital is 6 units

then,	A	B	C
ratio of capital	1	2	3
ratio of time	4	3	12
ratio of their profit	4	6	36

Total profit = 46 unit = 69000
1 unit = 1500
Share of B is = 6 unit × 1500
= 9000 Rupees.

23. Explanation:

Discount – 20%, Profit – 16%

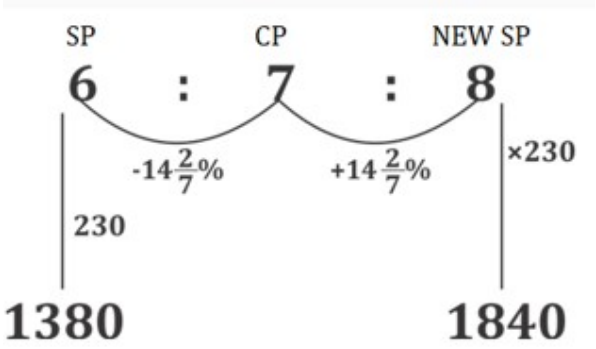
CP	:	MP
80		116
↓		↓
425		616.25

then $\boxed{MP = 616.25 \text{ Rs}}$

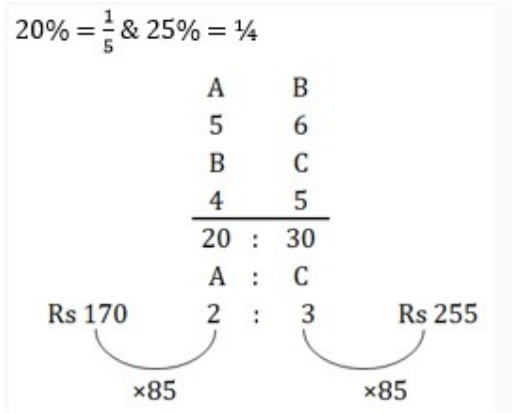
24. Explanation:

$30\%\ T_1 + 20\%\ T_2 = P$
$20\%\ T_1 + 30\%\ T_2 = P - 30$
$10\%\ T_1 - 10\%\ T_2 = 30$
$T_1 - T_2 = 300$
given that $T_1 + T_2 = 1700$
then, $T_1 = 1000$
$T_2 = 700$

25. Explanation:



26. Explanation:



27. Explanation
profit and loss formula
Loss % = x2/100 = 625/100 = 6.25%

28. Explanation
Net loss = x2/100% = 900/100 = 9%

29. Explanation
CP = (Difference in SP) ÷ (% Difference in profit) = 600/(5-(-11)) × 100 = (600/16)×100 = Rs3750

30.Explanation

Let CP = 100 then SP = 120. Profit % if it was calculated on SP will be
⇒ 20/120 × = 16.67%

31.Explanation.
Let CP= Rs. 100, therefore, MP= Rs. 125, Discount% = 12%
SP = 88% of MP = 88% of 125 = Rs. 110. Profit = 110 – 100 = Rs. 10
Profit = 10%.

32.Explanation.
Let CP = 100. SP = 132. This is after a discount of 12%, thus the marked price must be 132/0.88 = 150. Thus he is marking the product 50% above the cost price. Hence the profit will be 50%

33. Explanation.
Rs. 1.4 is the increase in absolute, 20% is the increase in percentage. Thus those two can be equated. Hence it can be concluded that 1.4 is 20% of the price i.e. the CP of one orange is 1.4/0.20 = Rs. 7. The SP per orange in the first case is 7 × 1.1 = Rs. 7.70. Hence option is E.

34. Explanation.
CP = (Difference in SP) ÷ (% Difference in profit) CP of the horse = 1800×100/14.5-(-8) = 1800×100/22.5 ⇒ CP = 8000.

35. Explanation.
Old CP = 4000 × (100/125) = 3200

36. Explanation.
Such question can be better answered by thinking in the reverse order. Let the CP = 100, there is a loss of 12% in the final case i.e. SP = 100 – 12 = Rs 88. Now this Rs. 88 is the four-fifth of the selling price as per the question. The original selling price will be 88 × 5/4 = Rs. 110. CP =100. There is a profit of Rs. 10, which is nothing but 10%, as the CP is taken to be Rs. 100

37. Explanation

Marked Price (MP) = ₹492

Discount = 39%
Profit = 22%

Formula used:

Selling Price (SP) = MP - (Discount × MP / 100)
Cost Price (CP) = SP / (1 + Profit / 100)

Calculation:

SP = 492 - (39 × 492 / 100)
⇒ SP = 492 - 191.88
⇒ SP = 300.12
CP = 300.12 / (1 + 22 / 100)
⇒ CP = 300.12 / 1.22
⇒ CP = 246

∴ The correct answer is option D

38. Explanation.
Number of oranges bought = 400
Cost price of 100 oranges = ₹1410
Profit = ₹960
Formula Used:
Selling Price per dozen = (Total Selling Price / Number of oranges sold) × 12
Calculation:
Cost price of 400 oranges = 400 × ₹1410 / 100
Cost price of 400 oranges = ₹5640
Total Selling Price = Cost price + Profit
Total Selling Price = ₹5640 + ₹960
Total Selling Price = ₹6600
Selling Price per orange = ₹6600 / 400
Selling Price per orange = ₹16.5
Selling Price per dozen = ₹16.5 × 12
⇒ ₹198
The selling price per dozen of oranges is ₹198.

39. Explanation
Given:
Profit = ₹190
Markup = 20% above cost price
Discount = 15% on list price
Formula used:
Profit = Selling Price - Cost Price
Selling Price = List Price × (1 - Discount Percentage/100)
List Price = Cost Price × (1 + Markup Percentage/100)
Calculation:
Let the Cost Price = ₹x
List Price = x × (1 + 20/100) = 1.2x
Selling Price = List Price × (1 - 15/100) = 1.2x × 0.85 = 1.02x
Profit = Selling Price - Cost Price
190 = 1.02x - x
⇒ 190 = 0.02x
⇒ x = 190 ÷ 0.02 = ₹9500
List Price = 1.2x = 1.2 × 9500 = ₹11,400
∴ The list price of the fan is ₹11,400.

40.Explanation
Given:
Marked price of notebook = ₹60
Discount on notebook = 25%
Marked price of pen = ₹80
Discount on pen = 25%
Formula Used:
Discounted price = Marked price × (1 - Discount%)
Saving = Marked price - Discounted price

Calculation:
Discount on notebook = 25% of ₹60
⇒ Discount on notebook = 60 × 0.25
⇒ Discount on notebook = 15
Discount on pen = 25% of ₹80
⇒ Discount on pen = 80 × 0.25
⇒ Discount on pen = 20
Total savings = Discount on notebook + Discount on pen
⇒ Total savings = 15 + 20
⇒ Total savings = 35
Raghav saved ₹35 due to the sale.

41.Explanation
Given:
Marked price of the article = ₹x
Discount = 15%
Selling price after discount = ₹408
VAT = 25%
Selling price after VAT = ₹408
Formula Used:
Selling price after discount = Marked price × (1 - Discount%)
Selling price after VAT = Selling price after discount × (1 + VAT%)
Calculation:
Selling price after VAT = ₹408
⇒ Marked price × (1 - 0.15) × (1 + 0.25) = 408
⇒ x × 0.85 × 1.25 = 408
⇒ x × 1.0625 = 408
⇒ x = 408 / 1.0625
⇒ x = 384
The value of ₹x is ₹384.

42.Explanation
Given:
Profit = 25 Percent
Discount = 15 Percent
Formula:
MP/CP = (100 + Profit %)/(100 – Discount %)
MP = Printed Price
CP = Cost Price
Calculation:
We know that –
MP/CP = (100 + Profit %)/(100 – Discount %) ……. (1)
Put all given values in equation (1) then we gets
MP/CP = (100 + 25)/(100 – 15)
⇒ 125/85
⇒ 25/17
∴ The Ratio of the Printed price and cost price of radio will be 25 : 17

43.Explanation.
Given:
A shopkeeper normally makes a profit of 20% in a certain transaction,
He weights 900 g instead of 1 kg, due to an issue with the weighing machine.
He charges 10% less than what he normally charges.
Formula used:
SP = 100−discount100×CP
Calculations:
Let the cost price of 1 Kg of goods = Rs. 100
So, the selling price of 1 Kg of goods = 100 × 120/100 = Rs. 120
Cost price of 900 grams of goods = Rs. 90
According to question,
Shopkeeper charges 10% less what he normally charges
So, the new selling price = old selling price × (100 - 10)/100
⇒ New selling price = 120 × 90100 =Rs. 108
So, profit = Rs. (108 - 90) = Rs. 18
So, profit % = (1890) × 100 = 20%
Hence, Profit percentage is 20%.

44. Explanation.
Given:
A dishonest merchant sells goods at a 12.5% loss on the cost price but uses 28 g weight instead of 36 g.
Concept used:
Final percentage change after two successive increments of A% and B% = (A + B + AB100) %
Calculation:
Percentage gain by using 28 g weight instead of 36 g = 36−2828×100 = 2007%
Percentage loss = 12.5%
Considering 12.5% loss as -12.5% profit,
Now, the final percentage profit/loss = 2007−12.5−2007×12.5100 = +12.5%
Here, the positive sign indicates a percentage profit.
∴ His percentage profit is 12.5%

Shortcut Trick**Calculation:**

Merchant sells goods at a 12.5% loss:
C.P : S.P = 8 : 7
Merchant uses 28 g weight instead of 36 g
C.P : S.P = 28 : 36 = 7 : 9
We can use successive methods:

C.P.	**S.P.**
8	7
7	9
56	63

So, C.P : S.P = 56 : 63 = 8 : 9
Profit% = {(9 - 8)/8} × 100
⇒ 12.5%

∴ The correct answer is 12.5%.

45.Explanation.
Given:
Two discounts = 40% and 20%
Formula:
Two discounts a% and b%
Total discount = (a+b)−ab100
Discount amount = (marked price) × (discount %)/100
Calculation:
Single discount percentage = (40+20)−40×20100 = 52%
⇒ 52 = 988/marked price × 100
⇒ Marked price = 1900
∴ Marked price of an article is Rs.1900.

Alternate Method Let the MP be x.
x - [x × (100 - 40)/100 × (100 - 20)/100] = 988
⇒ x - [x × (60/100) × (80/100)] = 988
⇒ x - x × (3/5) × (4/5) = 988
⇒ 13x/25 = 988
⇒ x = (988 × 25)/13
⇒ x = 1900
∴ Marked price of an article is Rs.1900.

46.Explanation.
Given:
Cost price of 36 kg sugar = Rs.1040
Formula used:
Profit = Selling price - Cost price
Calculation:
CP of 1 kg sugar = Rs.1040/36
According to the question,
SP × 10 = SP × 36 - CP × 36
⇒ CP × 36 = 26 × SP
⇒ 1040/ 36 × 36 = 26 × SP
⇒ 1040 = 26 × SP
⇒ SP = 1040/26 = 40
Now, SP of 5 kg of sugar = 40 × 5 = Rs. 200
∴ The selling price of 5 kg sugar = Rs.200

47. Explanation
Given:
A grocery shop is offering a 10% discount on the purchase of Rs.500 and above. A 5% discount is given on the purchase of value above Rs.250 but below Rs.500. A discount of an additional 1% is given if payment is made instantly in cash.
He bought 25 packets of biscuits and one packet is priced at Rs.30.
Concept used:
1. Final discount percentage after two successive discounts of A% and B% = (A+B−AB100)%

2. Selling price = Marked Price × (1 - Discount%)

Calculation:

Total billed price = 25 × 30 = Rs. 750

Since he paid in cash, he would get two consecutive discounts of 10% and 1%.

So, final discounts = 10 + 1 - (10 × 1)/100 = 10.9%

Now, he would have to pay = 750 × (1 - 10.9%) = Rs. 668.25

∴ He would have to pay Rs. 668.25.

48.Explanation.

Calculation:

Let cost price of the item be Rs. x

According to the question

(x – 440) = (1000 – x) × 60/100

⇒ (x – 440) = (1000 – x) × 3/5

⇒ 5x – 2200 = 3000 – 3x

⇒ 5x + 3x = 3000 + 2200

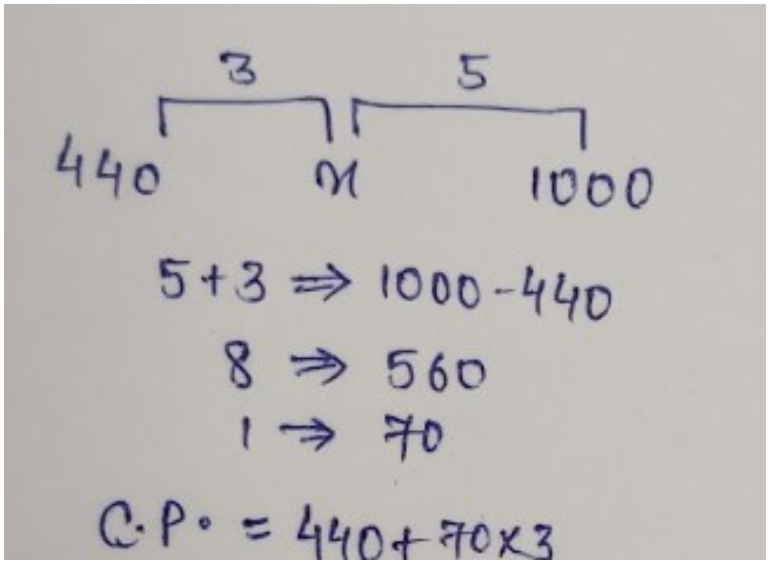
⇒ 8x = 5200

⇒ x = 5200/8

⇒ x = 650

∴ The correct answer is option A

Shortcut Trick



49.Explanation.

Shortcut Trick

Fruits bought at 15 for Rs. 140

Equal quantity of bought at 10 for Rs. 120

Fruits sold at Rs. 132/dozen

Let, the total quantity of fruits = 30

	15 for Rs. 140	10 for Rs. 120	Total
CP	Rs. 140	Rs. 180	Rs. 320
SP	Rs. 165	Rs. 165	Rs. 330

Profit percent = (330 - 320)/320 × 100 = 3.1/8%

∴ The required profit percent is 3.1/8%.

Alternate Metho

Given:

Fruits at 15 for Rs. 140 = Fruits at 10 for Rs. 120

Fruits sold at Rs. 132/dozen

Formula used:

Profit > Loss

Profit = SP - CP

Profit percent = Profit/CP × 100

Calculation:

Let, Total fruit brought

⇒ LCM (10 and 15) = 30

So, CP of 30 fruits at the rate of 15 for Rs. 140

⇒ 140/15 × 30 = Rs. 280

Similarly, CP of 30 fruits at 10 for Rs. 120,

⇒ 120/10 × 30 = Rs. 360

So, Total CP of 60 fruits = 280 + 360 = Rs. 640

Now,

⇒ SP of 12 fruits = Rs. 132

⇒ SP of 1 fruit = Rs. 11

⇒ SP of 60 fruits = Rs. 11 × 60 = Rs. 660

So, Profit = SP - CP = Rs.660 - Rs. 640

⇒ Rs. 20

Profit percent = 20/640 × 100 = 3.1/8

∴ The required profit percent is 3.1/8%.

50.Explanation.

Given:

A invested Rs. 29,000, while B and C invested Rs. 25,000 each

After 4 months, A withdrew Rs. 3,000

After 6 months from the initial date, C invested Rs. 12,000 more to the business

The total profit = Rs. 33200

Calculation:

The ratio of A, B, and C = [(29000 × 4) + (26000 × 8)] : (25000 × 12) : [(25000 × 6) + (37000 × 6)]

= (116000 + 208000) : 300000 : (150000 + 222000)

= 324000 : 300000 : 372000

= 27 : 25 : 31

∴ The profit of C = (31/83) × 33200 = Rs. 12400

∴ The share of C(in Rs.) in the profit at the end of the year is Rs. 12400