

EXERCISE

LEVEL 1

19. The marked price of an article is increased by 25% and the selling price is increased by 16.66%, then the amount of profit doubles. If the original marked price be Rs. 400 which is greater than the corresponding cost price by 33.33%, what is the increased selling price?

(a) 240 (b) 360
(c) 420 (d) 600

20. A shopkeeper calculated his profit per cent on the selling price which comes out to be 30%. If it had been calculated as usual on the cost price then what is the required percentage profit?

(a) $42\frac{6}{7}\%$ (b) $4\frac{7}{27}\%$
(c) $7\frac{6}{42}\%$ (d) none of these

21. An item was sold after giving two successive discounts of 20% and 10% respectively. If the item was sold for Rs. 468. The marked price of that item is :

(a) Rs. 600 (b) Rs. 500
(c) Rs. 575 (d) Rs. 650

22. The cost price of an article 'A' is Rs. 160 and selling price of another article 'B' is Rs. 240. If the selling price of A will be equal to the cost price of B, then the profit after selling A is 20%. What is the profit on 'B'?

(a) 16.66% (b) 50%
(c) 25% (d) none of these

23. A single discount equivalent to three successive discounts of 5%, 10%, 20% is :

(a) 68.4% (b) 35%
(c) 31.6% (d) 32%

24. Ragini purchases oranges at Rs. 10 per dozen and sells them at Rs. 12 for every 10 oranges. What is the profit percentage?

(a) 40% (b) 44%
(c) 60% (d) 48%

25. A trader uses a weighing balance that shows 1250 g for a kilogram. He further marks-up his cost price by 20%. What is the profit percentage?

(a) 5% (b) 45%
(c) 50% (d) 30%

26. On selling an article for Rs. 240, a trader loses 4%. In order to gain 10% he must sell that article for :

(a) Rs. 275 (b) Rs. 340
(c) Rs. 320 (d) Rs. 264

A merchant marks his goods at Rs. 300 and allows a discount of 25%. If he still gains 12.5%, then the cost price of article is :

(a) Rs. 220 (b) Rs. 200
(c) Rs. 240 (d) Rs. 260

An item costing Rs. 200 is being sold at 10% loss. If the price is further reduced by 5%, the selling price will be :

(a) Rs. 170 (b) Rs. 171
(c) Rs. 180 (d) Rs. 181

A person sold two cows each for Rs. 9900. If he gained 10% on one and lost 20% on the other, then which of the following is true?

(a) He gained Rs. 200
(b) He lost Rs. 200
(c) He neither gained nor lost
(d) None of the above

Two third of a consignment was sold at a profit of 5% and the remainder at a loss of 2%. If the total profit was Rs. 400, the value of the consignment (in rupees) was :

31. A fruit seller declares that he sells fruits at the cost price. However, he uses a weight of 450 g instead of 500 g. His percentage profit is :
 (a) 10% (b) $11\frac{1}{9}\%$
 (c) 12% (d) $12\frac{2}{9}\%$

32. A person loses Rs. 20 by selling some bananas at the rate of Rs. 3 per banana and gains Rs. 30, if he sells them at Rs. 3.25 per banana. The number of bananas sold by him :
 (a) 100 (b) 200
 (c) 120 (d) 2400

33. Due to an increase of 30% in the price of eggs, 3 eggs less are available for Rs. 9.10. The present rate per egg is :
 (a) 91 paise (b) 78 paise
 (c) 48 paise (d) 84 paise

34. By selling 12 apples for a rupee, a man loses 20%. How many for a rupee should he sell to gain 20%?
 (a) 8 (b) 10
 (c) 15 (d) 16

35. A dealer buys a washing machine, listed at Rs. 10000 and gets 10% and 20% successive discounts. He spends 10% of his CP on transport. At what price (in rupees) should he sell the washing machine to earn a profit of 10%?
 (a) 8722 (b) 7892
 (c) 8712 (d) 8840

36. 6% more is gained by selling a coat for Rs. 1425 than by selling it for Rs. 1353. The cost price of the coat is :
 (a) Rs. 1000 (b) Rs. 1250
 (c) Rs. 1500 (d) Rs. 1200

37. By selling a wrist watch at Rs. 405 the shopkeeper incurs a loss of 10%. What is the gain or loss percentage if he sells the same watch at Rs. 465?
 (a) profit of 10% (b) loss of 6%
 (c) profit of 3.33% (d) no profit no loss

8. Titan sells a wrist watch to a wholesaler making a profit of 10%. The wholesaler, in turn, sells it to the retailer making a profit of 10%. A customer purchases it by paying Rs. 990. Thus the profit of retailer is $2\frac{3}{11}\%$. What is the cost incurred by the Titan to produce it?
 (a) 768 (b) 750
 (c) 800 (d) 820

9. Pepsi and Coke, there are two companies, selling the packs of cold-drinks. For the same selling price Pepsi gives two successive discounts of 10% and 25%. While Coke sells it by giving two successive discounts of 15% and 20%. What is the ratio of their marked price?
 (a) 143 : 144 (b) 19 : 11
 (c) 136 : 135 (d) 73 : 77

10. When a shopkeeper reduces the selling price from 1080 to 1026 its loss increases by 4 percentage point. What is the selling price of this same article when it fetches a profit of 4%?

41. Profit, Loss and Discount
 (a) Rs. 1392
 (b) Rs. 1404
 (c) Rs. 1450
 (d) Rs. 1350
42. The difference between CP and SP of a table fan is Rs. 175 when it gives the profit of 14%. What is the selling price of that fan?
 (a) 1225
 (b) 1450
 (c) 1425
 (d) 1275
43. A company instead of raising the mark-up by 20% discounted the cost price by 20% while stitching the price tag on its product. Further the company offers a discount of 6.25% to its customer. In this process company incurs a loss of Rs. 37.5 on a single article. What is the selling price of that article?
 (a) 417.5
 (b) 112.5
 (c) 365.5
 (d) none of these
44. When an article is sold for Rs. 703 loss incurred is 25% less than the profit earned on selling it at Rs. 836. What is the selling price of the article when it earns a profit of 20%?
 (a) 912
 (b) 1576
 (c) 1532
 (d) 1092
45. Arun bought toffees at 6 for a rupee. How many for a rupee he should sell to gain 20%?
 (a) 3
 (b) 4
 (c) 5
 (d) can't be determined
46. A scientific calculator is available at Universal Shoppe in Hazratganz at 20% discount and the same is available at only 15% discount at Universal Shoppe Bhootnath Market. Ms. Agrawal has just sufficient amount of Rs. 800 to purchase it at Universal Shoppe Hazratganz. What is the amount that Ms. Agrawal has less than the required amount to purchase it at Universal Shoppe Bhootnath?
 (a) Rs. 70
 (b) Rs. 50
 (c) Rs. 100
 (d) data insufficient
47. A balance of a trader weighs 10% less than it should be. Still the trader marks-up his goods to get the overall profit of 20%. What is the markup on the cost price?
 (a) 40%
 (b) 8%
 (c) 25%
 (d) 16.66%
48. ITC sells one product at a profit of 20% another at a loss of 20% at the same selling price. What is the loss incurred by ITC?
 (a) 1%
 (b) 2%
 (c) 4%
 (d) 0%
49. In the previous question, if SP of each article be Rs. 200, what is the amount of loss?
 (a) Rs. 10
 (b) Rs. 16
 (c) Rs. 16.66
 (d) none of these
50. The cost price of 19 articles is same as the selling price of 29 articles. What is the loss %?
 (a) 35%
 (b) 34.48%
 (c) 52.63%
 (d) none of these
51. The selling price of 13 articles is same as the cost price of 23 articles. What is the profit percentage?
 (a) 43.47%
 (b) 74.83%
 (c) 78%
 (d) 76.92%
52. A trader can procure 34 pencils by selling 28 pencils. What is the ratio of cost price to the selling price of a pencil?

52. (a) 2 : 3
 (b) 14 : 17
 (c) 9 : 7
 (d) 4 : 7
53. At style cloth emporium the shopkeeper measures 20% less for every metre of cloth also he marks-up goods by 20%. What is the profit percentage?
 (a) 50%
 (b) 80%
 (c) 75%
 (d) none of these
54. A bookseller procures 40 books for Rs. 3200 and sells them at a profit equal to the selling price of 8 books. What is the selling price of one dozen books, if the price of each book is same?
 (a) 720
 (b) 960
 (c) 1200
 (d) 1440
55. The profit percentage of A and B is same on selling the articles at Rs. 1800 each but A calculates his profit on the selling price while B calculates it correctly on the cost price which is equal to 20%. What is the difference in their profits?
 (a) Rs. 360
 (b) Rs. 60
 (c) Rs. 540
 (d) Rs. 450
56. Each of A and B sold their article at Rs. 1818 but A incurred a loss of 10% while B gained by 1%. What is the ratio of cost price of the articles of A to that of B?
 (a) 101 : 90
 (b) 85 : 89
 (c) 81 : 75
 (d) none of these
57. A trader sold an article at a loss of 5% but when he increased the selling price by Rs. 65 he gained 3.33% on the cost price. If he sells the same article at Rs. 936, what is the profit percentage?
 (a) 15%
 (b) 16.66%
 (c) 20%
 (d) data insufficient
58. Even after a discount of $q\%$ on marked price a trader gains by $p\%$. What is the markup percentage over the cost price?
 (a) $\frac{p+q}{(q-p)} \times 100$
 (b) $\frac{p+q}{(100-p)} \times 100$
 (c) $\frac{p+q}{(100-q)} \times 100$
 (d) not possible
59. A milkman mixes 10% water in pure milk but he is not content with it so he again mixes 10% more water in the previous mixture. What is the profit percentage of milkman if he sells it at cost price?
 (a) 11.11%
 (b) 20%
 (c) 21%
 (d) 12.1%
60. A person sold an electronic watch at Rs. 96 in such a way that his percentage profit is same as the cost price of the watch. If he sells it at twice the percentage profit of its previous percentage profit then the new selling price will be:
 (a) Rs. 132
 (b) Rs. 150
 (c) Rs. 192
 (d) Rs. 180
60. A trader mixes 25% kerosene to his petrol and then he sells the whole mixture at the price of petrol. If the cost price of kerosene be 50% of the cost price of petrol, what is the net profit percentage?
 (a) $11\frac{1}{9}\%$
 (b) $12\frac{1}{9}\%$
 (c) $9\frac{1}{11}\%$
 (d) 20%

61. A retailer cheats both to his whole-seller and his customer by 10% by his faulty balance i.e., he actually weighs 10% more while purchasing from wholesaler and weighs 10% less while selling to his customer. What is his net profit percentage, when he sells at CP?
- (a) $22\frac{2}{11}\%$ (b) $22\frac{2}{9}\%$
 (c) 20% (d) 21%
62. A trader procures his goods from a wholesaler, whose balance reads 1200 g for 1000 g. The trader sells all the procured goods to a customer after marking up the goods at 20% above the cost price. What is his overall percentage profit or loss in the whole transaction?
- (a) 38% profit (b) 50% profit
 (c) no profit no loss (d) none of the above
63. A person wants to reduce the trade tax so he calculates his profit on the sale price instead of on the cost price. In this way by selling a article for Rs. 280 he calculates his profit as $14\frac{2}{7}\%$. What is his actual profit percentage?
- (a) 20% (b) 16.66%
 (c) 25% (d) data insufficient
64. A vendor sells his articles at a certain profit percentage. If he sells his articles at $1/3$ of his actual selling price, then he incurs a loss of 40%. What is his actual profit percentage?
- (a) 72% (b) 120%
 (c) 80% (d) none of these

LEVEL (2)

1. An automobile agency launched a scheme that if a customer purchases two Jabaaj Discover bikes, one extra Jabaaj Discover will be free and if he purchases 3 Jabaaj Pulser he will get one extra Jabaaj Pulser free. If the cost price of 3 Jabaaj Discover and 4 Jabaaj Pulser be Rs. 67500 and Rs. 232500 respectively. If a customer purchases 2 bikes of Jabaaj Discover and 3 bikes of Jabaaj Pulser as per scheme he availed 1 bike free of each category, then at what price these bikes should be sold so that the agency can get overall profit of 17.5% :
- (a) 235250 (b) 352500
 (c) 368000 (d) 268000
2. Rahul went to purchase a Nokia mobile handset, the shopkeeper told him to pay 20% tax if he asked the bill. Rahul manages to get the discount of 5% on the actual sale price of the mobile and he paid the shopkeeper Rs. 3325 without tax. Besides he manages to avoid to pay 20% tax on the already discounted price, what is the amount of discount that he has gotten?
- (a) 750 (b) 375
 (c) 875 (d) 525
3. When a bicycle manufacturer reduced its selling price by 50%, the number of bicycles sold radically increased by 600%. Initially the manufacturer was getting only 140% profit. What is the percentage increase of his profit?
- (a) 10% (b) 14%
 (c) 0% (d) can't be determined

65. A retailer increases the selling price by 25% due to which his profit percentage increases from 20% to 25%. What is the percentage increase in cost price?
- (a) 20% (b) 30%
 (c) 25% (d) 50%
66. Abhinav saves Rs. 25 by getting 6.66% discount on a textbook. What is the amount of money (in Rs.) paid by him?
- (a) 450 (b) 350
 (c) 225 (d) 375
67. At kul-kul petrol pump the operator gives 5% less petrol when he sells it at the cost price. What is his profit in this way?
- (a) 5% (b) 5.6%
 (c) 5.26% (d) 4.78%
68. Due to reduction of 25% in price of oranges a customer can purchase 4 oranges more for Rs. 16. What is original price of an orange?
- (a) Re 1 (b) Rs. 1.33
 (c) Rs. 1.5 (d) Rs. 1.6
69. A reduction of 20% in the price of sugar enables a housewife to purchase 6 kg more for Rs. 240. What is the original price per kg of sugar?
- (a) Rs. 10 per kg (b) Rs. 8 per kg
 (c) Rs. 6 per kg (d) Rs. 5 per kg
70. A wholesaler sells toys at a profit of 20% to a retailer and the retailer sells these toys to its customer at a profit of 25%. What is the profit percentage of the retailer?
- (a) 5% (b) 80%
 (c) 20% (d) 25%

13. 4. A trader marks his goods such that he can make 32% profit after giving 12% discount. However a customer availed 20% discount instead of 12%. What is the new profit percentage of trader?
- (a) 20% (b) 44%
 (c) 30% (d) 28.8%
14. 5. A retailer bought 3850 Linc pens and 1848 Cello pens at the same price. He sells Linc pens in such a way that he can buy 650 Linc pens with the sale price of 481 Linc pens. Again he can buy only 408 Cello pens with the sale price of 629 pens. What is the overall percentage of profit of the retailer?
- (a) 4.8% (b) 9.6%
 (c) 13% (d) none of these
15. 6. The ratio of selling price of 3 articles A, B and C is 8 : 9 : 5 and the ratio of percentage profit is 8 : 7 : 14 respectively. If the profit percentage of A is 14.28% and the cost price of A is Rs. 400, what is the overall percentage gain?
- (a) 14.28% (b) 14.87%
 (c) 16.66% (d) none of these
16. 7. Anna sold his car to Boney at a profit of 20% and Boney sold to Chakori at a profit of 10%. Chakori sold it to mechanic at a loss of 9.09%. Mechanic spent 10% of his purchasing price and then sold it at a profit of 8.33% to Anna once again. What is the loss of Anna?
- (a) 23% (b) 29%
 (c) 50% (d) 40%

8. In an office the number of employees reduces in the ratio of 3:2 and the wages increases in the ratio of 20:27. What is the profit percentage of employees over the previous wages?
- 10%
 - 9.09%
 - 11.11%
 - none of these

9. I asked the shopkeeper the price of a wristwatch. I found that I had just the required sum of money. When the shopkeeper allowed me a discount of 25%, I could buy another watch worth Rs. 940 for my younger sister. What is the price which I have paid for my own watch?
- Rs. 2700
 - Rs. 1800
 - Rs. 2820
 - Rs. 3760

10. A and B are two partners and they have invested Rs. 54,000 and Rs. 90,000 in a business. After one year A received Rs. 1800 as his share of profit out of total profit of Rs. 3600 including his certain commission on total profit since he is a working partner and rest profit is received by B. What is the commission of A as a percentage of the total profit?
- 20%
 - 10%
 - 5%
 - 25%

11. A trader sells goods to a customer at a profit of $k\%$ over the cost price, besides it he cheats his customer by giving 880 g only instead of 1 kg. Thus his overall profit percentage is 25%. Find the value of k ?
- 8.33%
 - 8.25%
 - 10%
 - 12.5%

12. A trader sells two brands of petrol; one is Extra Premium (EP) and other one is 'Speed' (SP). He mixes 12 litres of EP with 3 litres of speed and by selling this mixture at the price of EP he gets the profit of 9.09%. If the price of Extra Premium be Rs. 48 per litre, then the price of Speed (SP) is :
- Rs. 38 per litre
 - Rs. 42 per litre
 - Rs. 28 per litre
 - none of these

13. A, B and C invest in the ratio of 3:4:5. The percentage of return on their investments are in the ratio of 6:5:4. Find the total earnings, if B earns Rs. 250 more than A :
- Rs. 6000
 - Rs. 7250
 - Rs. 5000
 - none of these

14. Ajay bought a motor cycle for Rs. 50,000. 2 years later he sold it to Bijoy at 10% less of the cost price. Bijoy spent 5% of the purchasing price on its maintenance. Later Bijoy displayed the sale price of his motorcycle Rs. 50,000. Chetan wanted to purchase it at 15% discount but Bijoy gave him two successive discounts of 10% and 5% instead of 15% in one time. What is the actual discount availed by Chetan?
- 15%
 - 15.5%
 - 14.5%
 - none of these

15. Kamal bought a house in Sushant city, whose sale price was Rs. 8 lakh. He availed 20% discount as an early bird offer and then 10% discount due to cash payment. After that he spent 10% of the cost price in interior decoration and lawn of the house. At what price should he sell the house to earn a profit of 25%?
- Rs. 9 lakh
 - Rs. 7.99 lakh
 - Rs. 7.92 lakh
 - none of these

16. I wanted to purchase 10 chairs for the class room whose cost was Rs. 200 each. The trader offered me a discount if I were to purchase a set of 12 chairs. So I calculated that if I assume

the normal price of 10 chairs then we can purchase 2 extra chairs which cost me only Rs. 80 each of two chairs at the cost price of 12 chairs after discount. What is the percentage discount?

- 6%
- 8%
- 12%
- 10%

17. The cost of servicing of a Maruti car at Maruti care Pvt. Ltd. is Rs. 400. Manager of service centre told me that for the second service within a year a customer can avail a 10% discount and further for third and fourth servicing he can avail 10% discount of the previous amount paid, within a year. Further if a customer gets more than 4 services within a year he has to pay just 60% of the servicing charges on these services. A customer availed 5 services from the same servicing station, what is the total percentage discount fetched by the customer?
- 19.42%
 - 18.5%
 - 17.6%
 - 26%

18. The cost price of an article is C and the selling price of the same article is S , where Z is the profit or loss percentage. If the cost price and selling price both are increased by same amount then which of the following is true :
- Z increases
 - Z decreases
 - remains constant
 - none of these

19. Cost price of 12 oranges is equal to the selling price of 9 oranges and the discount on 10 oranges is equal to the profit on 5 oranges. What is the percentage point difference between the profit percentage and discount percentage?
- 20
 - 22.22
 - 16.66
 - 15

20. A car mechanic purchased four old cars for Rs. 1 lakh. He spent total 2 lakh in the maintenance and repairing of these four cars. What is the average sale price of the rest three cars to get 50% total profit if he has already sold one of the four cars at Rs. 1.2 lakh?
- 1.5 lakh
 - 1.1 lakh
 - 1.2 lakh
 - 1.65 lakh

21. The cost of setting up a magazine is Rs. 2800. The cost of paper and ink etc is Rs. 80 per 100 copies and printing cost is Rs. 160 per 100 copies. In the last month 2000 copies were printed but only 1500 copies could be sold at Rs. 5 each. Total 25% profit on the sale price was realized. There is one more resource of income from the magazine which is advertising. What sum of money was obtained from the advertising in magazine?
- Rs. 1750
 - Rs. 2350
 - Rs. 1150
 - Rs. 1975

22. DSNL charges a fixed rental of Rs. 350 per month. It allows 200 calls free per month. Each call is charged at Rs. 1.4 when the number of calls exceeds 200 per month and it charges Rs. 1.6 when the number of calls exceeds 400 per month and so on. A customer made 150 calls in February and 250 calls in March. By how much per cent the each call is cheaper in March than each call in February?
- 28%
 - 25%
 - 18.5%
 - none of these

23. In the Bargain Bazar everyone purchases with a fair bargaining, so the traders markup the prices too much. A trader marked up an article at Rs. M expected huge profit if it is sold on the marked price. But a customer purchased it at $M/2$ with his fine bargaining skills, so the expected profit of the trader diminished by 66.66%. What is the percentage discount fetched by the customer through bargaining?
- (a) 33.33% (b) 50%
(c) 66.66% (d) none of these
24. Tika Chand has a weighing balance in which there is a technical fault. The right pan of his balance measures always 200 g more than its left pan. Tika Chand as usual misutilise this balance in his business. While purchasing the articles he puts goods in the left pan and weight in the right pan while selling he reverse the order i.e., goods in the right pan and weight in the left pan. He uses only 2 kg weight for the measurement and to measure $2n$ kg weight he measures n times by 2-2 kg but he sells goods at cost price. What is his profit percentage?
- (a) 20% (b) $22\frac{2}{9}\%$
(c) $18\frac{2}{11}\%$ (d) none of these
25. Akram Miya has two types of grapes. One is the fresh grapes containing 80% water and dry grapes containing 25% water. He sells 20 kg dry grapes, by adding water to the dry grapes, at cost price. What is the total profit percentage when after adding water the weight of 20 kg dry grapes increased in the proportion of water in fresh grapes?
- (a) 275% (b) 200%
(c) 80% (d) 125%
26. Pankaj and Sushil invested some amount of money in the ratio of 3:5 for the same period in a business. They decided that at the end of year 20% profit was to be given to AIDS Control Society of India as a donation. Out of the remaining, 75% was to be reinvested and the rest of the profit was to be divided as interest on their capitals. If the difference in their shares is Rs. 1200. Find the total profit?
- (a) Rs. 18000 (b) Rs. 24000
(c) Rs. 20000 (d) none of these
27. Jagran group launched a new magazine in January 2004. The group printed 10000 copies initially for Rs. 50000. It distributed 20% of its stock freely as specimen copy and 25% of the rest magazines are sold at 25% discount and rest at 16.66% discount whose printing price was Rs. 12 per copy. What is the overall gain or loss in the first month's issue of magazine, if the magazine could not realize the income from advertisements or other resources?
- (a) 56% profit (b) 27% loss
(c) 16.66% profit (d) 38% profit
28. Teenagers shoe company sells the shoes whose prices i.e., cost prices and selling prices are the multiples of either 13, 14, 15, 16, 17, 18 or 19, starting from Rs. 399 to Rs. 699 (i.e., $399 \leq CP/SP \leq 699$). What can be the maximum profit of the company?
- (a) Rs. 292 (b) RS. 398
(c) Rs. 298 (d) Rs. 300
29. Jhun Jhunwala makes 1000 toys and incurs a cost of Rs. 1.2 for each toy. He marks-up the price in such a way that if he sells only 70% of the manufactured toys he will realize 16.66% overall profit. He sells only 750 articles at the marked price since rest of the toys are found to be defective so can't be sold. What is the net profit or loss of Jhun Jhunwala?
- (a) 14.44% loss (b) 25% profit
(c) 33.33% profit (d) none of these
30. Anupam sells a painting to Bhargava at $4/5$ th the rate of profit at which Bhargava sells it to Chaudhary. Further Chaudhary sells it to Dara Singh at half the rate of profit at which Anupam sold it to Bhargava. If Chaudhary earns a profit of 10% by selling it to Dara Singh for Rs. 2805. What is the cost price of painting for Bhargava?
- (a) 1896 (b) 2040
(c) 1680 (d) 2000
31. A dishonest retailer cheats his wholesaler and customer both. He purchases 19% more from the wholesaler and sells 15% less while selling to its customer. What is profit percentage by selling the goods at cost price?
- (a) 36.78% (b) 34%
(c) 40% (d) 36.85%
32. Rotomac produces very fine quality of writing pens. Company knows that on an average 10% of the produced pens are always defective so are rejected before packing. Company promises to deliver 7200 pens to its wholesaler at Rs. 10 each. It estimates the overall profit on all the manufactured pens to be 25%. What is the manufacturing cost of each pen?
- (a) Rs. 6 (b) Rs. 7.2
(c) Rs. 5.6 (d) Rs. 8
33. Pratibha printers prepares diaries expecting to earn a profit of 40% by selling on the marked price. But during transportation 8% diaries were got spoiled due to at random rain and 32% could be sold only at 75% of the cost price. Thus the remaining 60% diaries could be sold at the expected price. What is the net profit or loss in the whole consignment?
- (a) 6% (b) 10%
(c) 8% (d) can't be determined
34. Radhey Lal markup the prices of sweets by 40% and he sold only $40\% \times \frac{2}{7}$ discount of those at this price. He sells half of the rest at $14\frac{2}{7}\%$ discount and rest at 25% discount. What is the net profit of Radhey Lal?
- (a) 26.5% (b) 23.5%
(c) 30% (d) 28.6%
35. The price of an article reduces to 576 after two successive discounts. The markup is 80% above the cost price of Rs. 500. What is the new profit percentage if instead of two successive discounts the markup price was further increased successively two times by the same percentage?
- (a) 259.2% (b) 59.2%
(c) 159.2% (d) can't be determined
36. A trader marks-up his goods by 80% and gives discount of 25%. Besides it he weighs 10% less amount while selling his goods. What is the net profit of trader?
- (a) 50% (b) 35%
(c) 45% (d) 55%

Profit, Loss and Discount

37. A dishonest trader marks up his goods by 80% and gives discount of 25%. Besides he gets 20% more amount per kg from wholesaler and sells 10% less per kg to customer. What is the overall profit percentage?

- (a) 80%
(b) 60%
(c) 70%
(d) none of these

38. A dishonest dealer purchases goods at 20% discount of the cost price of Rs x and also cheats his wholesaler by getting 20% extra through false weighing, per kg. Then he marks up his goods by 80% of x , but he gives a discount of 25% besides he cheats his customer by weighing 10% less than the required. What is his overall profit percentage?

- (b) 100%
(d) 120%

39. Anjuli, Bhoomika and Chawla went to market to purchase the rings whose costs were same. But each ring was available with two successive discounts. Anjuli availed two successive discounts of 5% and 20%. Bhoomika availed two successive discounts 10% and 15% while Chawla availed two successive discounts of 12% and 13%. Who gets the maximum possible discount?

- (a) Anjuli
(b) Bhoomika
(c) Chawla
(d) all of these

40. An egg seller sells his eggs only in the packs of 3 eggs, 6 eggs, 9 eggs, 12 eggs etc., but the rate is not necessarily uniform. One day Raju (which is not the same egg seller) purchased at the rate of 3 eggs for a rupee and the next hour he purchased equal number of eggs at the rate of 6 eggs for a rupee. Next day he sold all the eggs at the rate of 9 eggs for Rs. 2. What is his percentage profit or loss?

- (a) 10% loss
(b) 11.11% loss
(c) 3% loss
(d) 2.5% profit

41. Virendra and Gurindra purchased one camera each at the same prices. Later on Amrendra purchased both cameras at equal prices from Virendra and Gurindra. But the profit percentage of Virendra was P while the same of Gurindra was

Q since Gurindra calculated his profit on the selling price. Thus $Q = 41 \frac{2}{3} \%$ of P . If Amrendra sells one of the camera to Dholakiya at $P\%$ profit then what is the cost price for Dholakiya, while Amrendra purchased each of the camera at Rs. 240?

- (a) Rs. 676
(b) Rs. 500
(c) Rs. 576
(d) none of these

42. A merchant earns 25% profit in general. Once his 25% consignment was abducted forever by some goondas. Trying to compensate his loss he sold the rest amount by increasing his selling price by 20%. What is the new percentage profit or loss?

- (a) 10% loss
(b) 12.5% loss
(c) 12.5% profit
(d) 11.11% loss

43. A milkman purchases 10 litres of milk at Rs. 7 per litre and forms a mixture by adding freely available water which constitutes 16.66% of the mixture. Later on he replaced the mixture by some freely available water and thus the ratio of milk is to water is 2 : 1. He then sold the new mixture at cost price of milk and replaced amount of mixture at twice the cost of milk then what is the profit percentage?

- (a) 68%
(b) 34%
(c) 40%
(d) none of these

44. Profit on selling 10 candles equals selling price of 3 bulbs. While loss on selling 10 bulbs equals selling price of 4 candles. Also profit percentage equals to the loss percentage and cost of a candle is half of the cost of a bulb. What is the ratio of selling price of candle to the selling price of a bulb?

- (a) 5 : 4
(b) 3 : 2
(c) 4 : 5
(d) 3 : 4

45. Cost price of two motorcycles is same. One is sold at a profit of 15% and the other for Rs. 4800 more than the first. If the net profit is 20%. Find the cost price of each motorcycle :

- (a) Rs. 48000
(b) Rs. 52000
(c) Rs. 36000
(d) Rs. 42500



Answers

INTRODUCTORY EXERCISE-6.1

1. Rs. 180 and Rs. 225 2. Rs. 9000 3. Rs. 345 4. Rs. $153\frac{1}{3}$ per hundred 5. Rs. 15300, Rs. 17850, gain = $\frac{5}{11}\%$

INTRODUCTORY EXERCISE-6.2

1. (d)	2. (c)	3. (d)	4. (b)	5. (c)	6. (b)	7. (c)	8. (d)	9. (c)	10. (c)
11. (c)	12. (b)	13. (c)	14. (b)	15. (a)	16. (d)	17. (c)	18. (b)	19. (c)	

LEVEL-1

1. (a)	2. (b)	3. (b)	4. (c)	5. (c)	6. (d)	7. (d)	8. (b)	9. (a)	10. (c)
11. (a)	12. (a)	13. (d)	14. (d)	15. (c)	16. (d)	17. (b)	18. (b)	19. (c)	20. (a)
21. (d)	22. (c)	23. (c)	24. (b)	25. (c)	26. (a)	27. (b)	28. (b)	29. (d)	30. (a)
31. (b)	32. (b)	33. (a)	34. (a)	35. (c)	36. (d)	37. (c)	38. (c)	39. (c)	40. (b)
41. (c)	42. (b)	43. (a)	44. (c)	45. (b)	46. (b)	47. (c)	48. (c)	49. (b)	50. (d)
51. (b)	52. (a)	53. (c)	54. (b)	55. (a)	56. (c)	57. (c)	58. (c)	59. (a)	60. (a)
61. (b)	62. (c)	63. (b)	64. (c)	65. (a)	66. (b)	67. (c)	68. (b)	69. (a)	70. (d)

LEVEL-2

1. (b)	2. (c)	3. (c)	4. (a)	5. (d)	6. (d)	7. (a)	8. (a)	9. (c)	10. (a)
11. (c)	12. (c)	13. (b)	14. (c)	15. (c)	16. (d)	17. (a)	18. (b)	19. (b)	20. (b)
21. (d)	22. (a)	23. (b)	24. (b)	25. (a)	26. (b)	27. (a)	28. (c)	29. (b)	30. (b)
31. (c)	32. (b)	33. (c)	34. (b)	35. (c)	36. (a)	37. (a)	38. (a)	39. (a)	40. (b)
41. (c)	42. (c)	43. (a)	44. (b)	45. (a)					

LEVEL 1

Abhishek

1. **Discount** \rightarrow 2800 **Bhanu**
 $2400 + 640 = 3040$
 The difference in selling price is same as difference in
 discount which Rs. 240 ($= 3040 - 2800$)

2. $\because 10\% x = 15\% \text{ of } y$, where $x + y = 30000$
 $\Rightarrow \frac{x}{y} = \frac{3k}{2k}$

Hence, the difference $= k = 6000$

3. Let the cost price of 1 litre pure milk be Re. 1, then
 $\left\{ \begin{array}{l} 6 \text{ litres (milk)} \rightarrow \text{CP} = \text{Rs. 6} \\ 2 \text{ litres (water)} \rightarrow \text{CP} = \text{Rs. 0} \end{array} \right\} \rightarrow \text{CP} = \text{Rs. 6 only.}$

and 8 litre mixture $\rightarrow \text{SP} \rightarrow 8 \times 2 = \text{Rs. 16}$

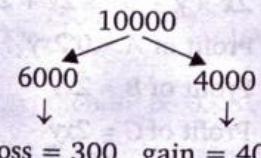
$$\text{Profit} = \frac{16 - 6}{6} \times 100 = \frac{1000}{6} = 166.66\%$$

4. $\text{SP of } 60\% \text{ goods} = 0.6x \times 0.95 = 0.57x$
 $\text{SP of } 40\% \text{ goods} = 0.4x \times 1.1 = 0.44x$ } Total $\text{SP} = 1.01x$

$$\text{Profit} = 0.01x = 100$$

$$x = 10000$$

Alternatively: From option (c)



$$\text{loss} = 300 \quad \text{gain} = 400$$

$$\text{net gain} = 400 - 300 = \text{Rs. 100},$$

Hence, option (c) is correct.

5. Let the MP of 1 kg tea be Re. 1, then CP of 20 kg with discount
 $= 20 \times 0.9 = \text{Rs. 18}$

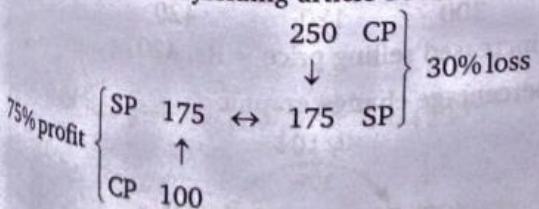
also 1 kg tea is free. So the retailer gets tea worth Rs. 21 by
 paying Rs. 18 only.

$$\text{Profit \%} = \frac{\text{goods left}}{\text{goods sold}} \times 100$$

$$= \frac{21 - 18}{18} \times 100 = 16.66\%$$

(Since the retailer earns Rs. 3 on each Rs. 18)

6. Let the CP of profit yielding article be Rs. 100 then



$$\text{Total CP} = 350, \quad \text{Total SP} = 350$$

So there is no profit no gain.

Alternatively: $1.75x = 0.7y$

$$\Rightarrow \frac{x}{y} = \frac{2}{5}$$

again

$$\text{and } \left[\begin{array}{l} 2 \times 1.75 = 3.5 \\ 5 \times 0.7 = 3.5 \end{array} \right]$$

Total cost price $= 2 + 5 = \text{Rs. 7}$

Total selling price $= 3.5 + 3.5 = \text{Rs. 7}$

Hence, no loss no gain.

	CP	SP	MP	
Initially	100	140	\times	(since profit = 40%)
New prices	100	112	140	

$$\text{profit} = 12\% \quad \text{discount} = 20\%$$

$$8. \quad \frac{\text{CP}}{\text{SP}} = \frac{2}{3}$$

$$\therefore \text{profit (\%)} = \frac{1}{2} \times 100 = 50\%$$

Alternatively: $\text{CP} = \frac{100}{18} = 5.55 \text{ paise}$

$$\text{SP} = \frac{100}{12} = 8.33 \text{ paise}$$

$$\text{Profit} = \frac{8.33 - 5.55}{5.55} \times 100 = 50\%$$

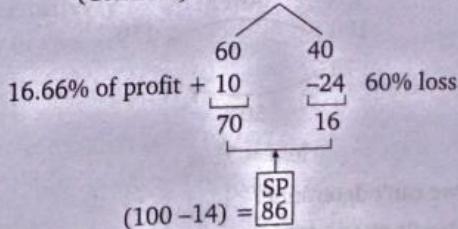
	CP	SP	MP	
9.	100	120	150	

$$20\% \text{ profit} \quad 20\% \text{ discount}$$

But it can be directly solved as $\text{SP} = 1.2 \text{ CP} = \text{Rs. 2304}$

NOTE There is no role of discount.

10. Note: There is no role of cost price of article (Rs. 123684)
 (Consider) $\text{CP} \rightarrow 100$



Since, the overall % loss = 14%

Thus option (c) is correct.

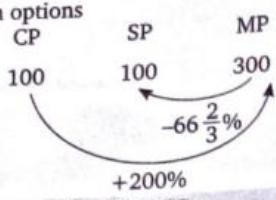
Alternatively: $0.6x + k \times 0.4x = 0.86x$

$$0.4kx = 0.16x$$

$$\Rightarrow k = 0.4$$

$$\Rightarrow \text{Therefore loss} = 1 - 0.4 = 0.6 \text{ i.e., } 60\%$$

11. Go through options



NOTE: When there is no loss, $CP = SP$.

Alternatively: $CP = SP$ and MP

From percentage change graphic :

Decrease	Increase
$\frac{2}{3} \downarrow$	$\frac{2}{3-2} = \frac{2}{1} \uparrow$
$= 66.66\%$	$= 200\%$

So, when $CP = 100$, markup % = 200, $MP = 300$

$$\text{Discount} = 66 \frac{2}{3}\% = 200, SP = 100 = CP$$

Alternatively : $(CP = SP) = \frac{1}{3} MP$

$$\Rightarrow (CP = SP) : MP = 1 : 3$$

12.

$$CP : MP = 2x : 3x$$

$$\Rightarrow \text{Profit} = x$$

$$(\%) \text{ profit} : (\%) \text{ discount} = 3 : 2$$

$$\text{Let } CP = 200, SP = 300$$

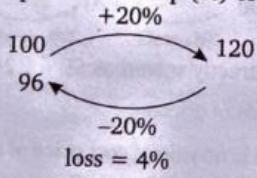
$$\text{But } \frac{3x}{100} \times 200 + \frac{2x}{100} \times 300 = 100$$

$$\Rightarrow x = 8.33\%$$

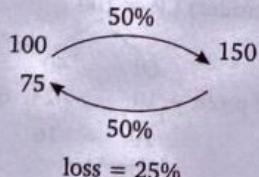
$$\text{Discount } 2x = 16.66\%$$

13. It is dependent upon the markup (%) or discount (%)

Since,



Again



Hence we can't determine.

14. $CP \rightarrow \text{Profit} (\%) \rightarrow MP$

$$\rightarrow 100 \rightarrow x\% \rightarrow 100 + \frac{100x}{100} = (100 + x)$$

Again, $MP \rightarrow \text{discount} \rightarrow SP$

$$\rightarrow (100 + x) \rightarrow x\% \rightarrow (100 + x) - (100 + x) \frac{x}{100} = (100 + x) \left(1 - \frac{x}{100}\right)$$

$$\text{Now } \frac{(100 + x)}{(100 + x) \left(1 - \frac{x}{100}\right)} = \frac{2}{1}$$

$$\Rightarrow \left(1 - \frac{x}{100}\right) = \frac{1}{2} \Rightarrow x = 50\%$$

This can be observed in the solution of the previous problem.

15. Go through option

$$180 \times 12 \times 1.2 + 180 \times 8 \times 1.1 = 180 [14.4 + 8.8] = 180 (23.2) = 4176$$

$$\text{and } 180 \times 20 \times 1.15 = 4140$$

$$\text{Therefore loss} = 4176 - 4140 = 36$$

Hence option (c) is correct.

$$\text{Gain} = 30000$$

$$\text{loss} = 20000$$

net gain = 10000 over Rs. 4 lakh

$$\text{Hence, profit} = \frac{10000}{400000} \times 100 = 2.5\%$$

16. Let the $MP = \text{Re } 1$ per kg then

Weight	MP	Rate
100	100	1
96	80	$\frac{80}{96}$

$$\text{Effective discount} = 1 - \frac{80}{96} = \frac{16}{96}$$

$$\% \text{ discount} = \frac{16}{96} \times 100 = 16.66\%$$

$$17. CP \text{ of } A + B + C = 2x \times y + 5x \times 2y + 2x \times 4y = 20xy$$

$$\text{Profit of } A = 0.2xy$$

$$\text{Profit of } B = 2xy$$

$$\text{Profit of } C = 2xy$$

$$\text{Total profit} = 4.2xy$$

$$\% \text{ profit} = \frac{4.2xy}{20xy} \times 100 = 21\%$$

18. Initially

CP	Profit	SP	MP
100	x	$(100 + x)$	133.33

After change	100	$2x$	$(100 + x) \frac{7}{6}$

$$\text{Now, } \frac{7}{6} - 100 = 2x$$

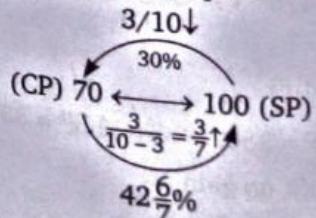
$$\Rightarrow x = 20\%$$

CP	Profit	SP	MP
100	20	120	133.33

So,	300	60	360
Again	300	120	420

So the increased selling price = Rs. 420

20. From percentage change graphic



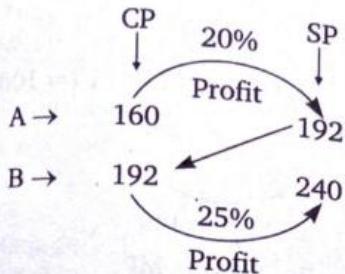
$$\text{Increase} = \frac{10}{(10-3)} = \frac{3}{7} \uparrow = 42\frac{6}{7}\%$$

21. Let the price be x , then

$$x \times 0.8 \times 0.9 = 468$$

$\Rightarrow x = 650$, therefore marked price = Rs. 650
Alternatively: $650 \times 0.8 \times 0.2 = 468$
Hence option (d) is correct.

22.



$$23. \text{Reduced price} = 100 \times 0.95 \times 0.90 \times 0.80 = 68.40$$

$$\therefore \text{Single discount} = (100 - 68.4)\% = 31.6\%$$

$$24. CP = \frac{10}{12}, SP = \frac{12}{10}$$

$$\frac{12}{10} - \frac{10}{12}$$

$$\text{Profit (\%)} = \frac{10}{12} \times 100 = 44\%$$

25. Let the cost price of one gram be Re. 1, then the markup price be Rs. 1.2 per g.

Now he sells 1000 g which seems to be 1250 g so he charges to a customer $1250 \times 1.2 =$ Rs. 1500 for 1000 g (or Rs. 1000)

$$\text{Thus his profit \%} = \frac{1500 - 1000}{1000} \times 100 = 50\%$$

26. Let the CP be Rs. x , then SP be $0.96x$

$$0.96x = 240 \Rightarrow x = 250$$

$$\text{Now the new SP} = 250 \times 1.1 = 275$$

27.

CP	SP	MP
x	$112.5x = 225$	300

(−25%)

$\therefore x = 200$, hence the cost price be Rs. 200.

NOTE It can also be solved by using option.

First of all find the SP by decreasing MP by 25% then this SP will be equal to 112.5% (12.5% is the profit) of the cost price so the CP can be find as given above.

$$28. CP \xrightarrow{(-10\%)} (SP)_1 \xrightarrow{(-5\%)} (SP)_2$$

200	180	171
-----	-----	-----

$$29. \text{The CP of profitable cow} = \frac{9900}{1.1} = 9000$$

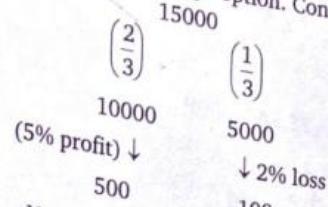
and profit = Rs. 900

$$\text{The CP of loss yielding cow} = \frac{9900}{0.8} = 12375$$

and loss = Rs. 2475

$$\text{So, the net loss} = 2475 - 900 = 1575$$

30. The best way is to go through option. Consider option (a)



Hence, option (a) is correct.

$$\text{Alternatively: } \left[\left(1.05 \times \frac{2x}{3} + 0.98 \frac{x}{3} \right) - x \right] = 400$$

$$\Rightarrow x = 15000$$

$$31. \text{Profit (\%)} = \frac{\text{goods left}}{\text{goods sold}} \times 100 = \frac{50}{450} \times 100 = 11\frac{1}{9}\%$$

Alternatively: Suppose CP of 1 g is Re. 1 then he sells goods worth Rs. 450 only and charges Rs. 500. So the profit is Rs. 50 over the sale price of Rs. 450.

32. Go through options. Consider option (b)

$$200 \times 3.25 - 200 \times 3 = \text{Rs. } 50 (= 30 + 20)$$

Hence, option (b) is correct.

Alternatively: Rs. 0.25 is the difference on 1 banana

\therefore Re 1 is the difference on $\frac{1}{0.25} = 4$ bananas

\therefore Rs. 50 is the difference on $4 \times 50 = 200$ bananas

33. By percentage change (or fraction change) graphic increase decrease

$$30\% = \frac{3}{10} \uparrow \quad \frac{3}{13} \downarrow \quad [\text{Since product i.e., price is constant}]$$

It means now $\frac{3}{13}$ times less eggs are available which is equal to 3 eggs.

$$i.e., \quad \frac{3x}{13} = 3$$

$$\Rightarrow x = 13 \text{ eggs (initially)}$$

Now available eggs on the same price = $13 - 3 = 10$

$$\text{Thus, the new price} = \frac{910}{10} = 91 \text{ paise}$$

Alternatively : Go through options.

$$\begin{array}{cccccc} \text{New or changed} & \text{No. of eggs} & \text{Rate} & & \text{total prices} \\ \text{Initial} \rightarrow & \text{10} & \times 91 & \rightarrow & 910 \text{ paise} \\ & \text{13} & \times 70 & \rightarrow & 910 \text{ paise} \end{array}$$

\therefore Therefore option (a) is correct.

$$34. SP = \frac{100}{12} \text{ paise}$$

$$CP = x, SP = 0.8x = \frac{100}{12} \Rightarrow x = \frac{100}{9.6} \text{ paise}$$

$$\text{Therefore, } CP = \frac{100}{9.6} \text{ paise}$$

$$\text{Thus, the new SP (with 20\% profit)} = \frac{100}{9.6} \times 1.2 = \frac{100}{8} \text{ paise}$$

Hence, 8 apples can be purchased for Re. 1 to gain 20%.

LEVEL (2)

1. Just a sitter but a logical problem.

$$CP \text{ of 5 bikes} = 67500 + 232500 = 300000$$

$$\text{Now, since we require 17.5\% profit, so } SP = 300000 \times \frac{117.5}{100}$$

$$= \text{Rs. 352500}$$

2. $CP = 100$, SP (with tax) = 120

$$\text{New } SP = 100 - 5 = 95$$

$$\therefore \text{Effective discount} = 120 - 95 = 25$$

So, at SP of 95 \rightarrow discount = 25

$$\text{and at } SP \text{ of } 3325 \rightarrow \text{discount} = \frac{25}{95} \times 3325 = 875$$

3. Let the CP of a bicycle = Rs. 100

Now, since profit 140%

$$\therefore SP = 240$$

Now, 7 bicycles are being sold instead of 1 bicycle, but the sale price of new bicycle = Rs. 120

Therefore total sale price of new sale of bicycles

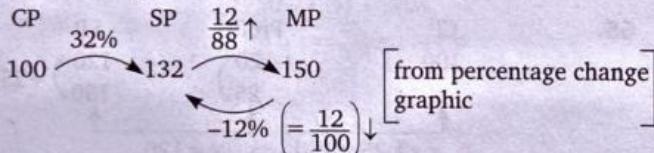
$$= 7 \times 120 = 840$$

$$\text{and the } CP = 7 \times 100 = 700$$

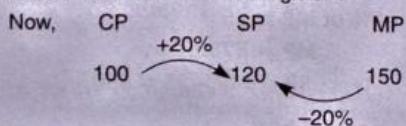
$$\text{So, the new profit} = 840 - 700 = \text{Rs. 140}$$

Since the initial profit is same as the new so there is no increase in percentage.

4. CP



NOTE In this case first of all find the SP , after adding profit percentage to CP then find the MP through SP .



Here first of all we subtract discount from the MP then the resultant value will be SP .

- 5.

Linc pens Cello pens

$$CP : SP \quad CP : SP$$

$$37 : 50 \quad 37 : 24$$

$$\text{Profit \%} = \frac{13}{37} \times 100$$

$$\text{and } \text{Loss \%} = \frac{13}{37} \times 100$$

Since Profit = loss

Hence option (d) is correct.

- 6.

$$SP \quad A \quad B \quad C$$

$$\frac{1}{7} \left(\frac{8}{7} \right) \frac{1}{8} : \frac{1}{8} \left(\frac{9}{8} \right) \frac{1}{9} : \frac{1}{4} \left(\frac{5}{4} \right) \frac{1}{5}$$

$$\text{Since } 14.28\% = \frac{1}{7}$$

So, the ratio of profit percentage of

$$\begin{array}{ccc} A & B & C \\ 8 & : & 7 \\ \downarrow & & \downarrow \\ 1 & & 1 \\ \hline 7 & & 8 & 4 \end{array}$$

Thus the ratio of CP of $A : B : C$

$$7 : 8 : 4$$

$$\text{Therefore \% profit} = \frac{(8 + 9 + 5) - (7 + 8 + 4)}{(7 + 8 + 4)} \times 100$$

$$= \frac{3}{19} \times 100 = 15.78\%$$

$$\begin{array}{cccc} 7. & A & B & C \\ CP \rightarrow & 100 & 120 & 132 \\ SP \rightarrow & 120 & 132 & 120 \\ CP \rightarrow & 143 & & \end{array} \quad (120 + 12) = 132 \quad 143$$

$$\text{Loss of } A = 143 - 120 = 23$$

$$\% \text{ loss of } A = \frac{23}{100} \times 100 = 23\%$$

8. Total wages = no. of employees \times wage per employee

$$60xy = 3x \times 20y$$

$$54xy = 2x \times 27y$$

$$\text{Profit \%} = \frac{60 - 54}{60} \times 100 = 10\%$$

9. If I had Rs. 100

Discount = 25 = cost of my sister's watch

then cost of my own watch = 75

Thus the ratio of cost of my own watch to that of my sister's watch = 3 : 1

10. Ratio of profit of $A : B$ (excluding commission of A)

$$= 3 : 5 \quad (\because 54 : 90 = 3 : 5)$$

Now the share of profit of $B = 3600 - 1800 = \text{Rs. 1800}$

So the share of profit of A (excluding commission) = Rs. 1080

So the commission of $A = 1800 - 1080 = 720$

$$\text{Therefore the required percentage} = \frac{720}{3600} \times 100 = 20\%$$

$$11. \text{ Profit \%} = \frac{25}{100} = \frac{120 + k}{880} \quad (\text{Profit}) \Rightarrow k = 100 \quad (\text{Sale})$$

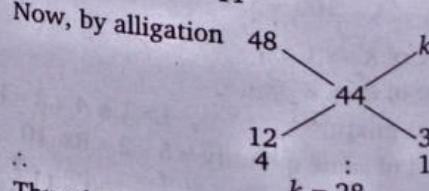
$$\text{Therefore, net profit \%} = \frac{100}{1000} \times 100 = 10\%$$

- 12.

$$SP = \frac{12}{11} \text{ of } CP$$

$$48 = \frac{12}{11} \text{ of } CP \Rightarrow CP = 44$$

Now, by alligation



Thus the price of speed brand is Rs. 28/litre .

	A	B	C
14. Investment	$3x$	$4x$	$5x$
Rate of return	$6y\%$	$5y\%$	$4y\%$
Return	$\frac{18xy}{100}$	$\frac{20xy}{100}$	$\frac{20xy}{100}$

$$\text{Total} = (18 + 20 + 20) = \frac{58xy}{100}$$

$$B's \text{ earnings} - A's \text{ earnings} = \frac{2xy}{100} = 250$$

$$\text{Total earning} = \frac{58xy}{100} = 7250$$

	after first discount	after second discount
14. MP	90	85.5

So, the net discount = $100 - 85.5 = 14.5\%$

	CP	Total CP
15. MP	$100 \rightarrow 80 \rightarrow 72 \rightarrow 79.2$	

- 20% - 10% + 10%

$$SP = 125\% \text{ of CP}$$

$$SP = 1.25 \times 79.2$$

$$SP = 99$$

$$\text{So, initially marked price} = 100 \Rightarrow 8,00,000$$

$$\text{Final sale price} = 99 \Rightarrow 7,92,000$$

$$16. \text{ Price of 10 chairs} = 10 \times 200 = 2000$$

$$\text{Price of 12 chairs (without discount)} = 12 \times 200 = 2400$$

$$\text{Price of 12 chairs with discount} = 10 \times 200 + 2 \times 80 = 2160$$

$$\text{therefore discount} = 2400 - 2160 = 240$$

$$\text{Hence discount \%} = \frac{240}{2400} \times 100 = 10\%$$

$$17. \text{ Amount paid in 1st service} = 100 \text{ (suppose)}$$

$$\text{Amount paid in 2nd service} = 90$$

$$\text{Amount paid in 3rd service} = 81$$

$$\text{Amount paid in 4th service} = 72.9$$

$$\text{Amount paid in 5th service} = 60$$

$$\text{Total amount paid} = \underline{403.9}$$

$$\text{Discount} = 500 - 403.9 = 96.1$$

$$\text{Discount \%} = \frac{96.1}{500} \times 100 = 19.42\%$$

18. Consider some proper values and then check out.

$$CP : SP$$

$$3 : 4$$

$$\text{Profit on 3 apples} = \text{Re 1} \text{ (consider CP = Re 1)}$$

$$\text{Profit} = 33.33\%$$

$$\text{discount} = 11.11\%$$

$$CP \quad SP \quad MP$$

$$3 \quad \underbrace{4}_{(1)} \quad \underbrace{4.5}_{(0.5)}$$

Profit is double that of discount

$$\text{So, the percentage point difference} = 33.33\% - 11.11\%$$

$$= 22.22\% \text{ point}$$

$$20. \text{ Total cost of 4 cars} = 1 + 2 = 3 \text{ lakh}$$

$$\text{Total SP of 4 cars} = 3 \times 1.5 = 4.5 \text{ lakh}$$

$$SP \text{ of 1 car} = 1.2 \text{ lakh}$$

$$SP \text{ of rest 3 cars} = 4.5 - 1.2 = 3.3 \text{ lakh}$$

$$\text{Average SP of all the 3 cars} = 1.1 \text{ lakh}$$

$$21. \text{ Setup cost} = \text{Rs. 2800}$$

$$\text{Paper etc.} = \text{Rs. 1600}$$

$$\text{Printing cost} = \text{Rs. 3200}$$

$$\text{Total cost} = \text{Rs. 7600}$$

$$\text{Total sale price} = 1500 \times 5 = 7500$$

$$\text{Let the amount obtained from advertising is } x \text{ then}$$

$$(7500 + x) - 7600 = 25\% \text{ of } 7500$$

$$x = 1975$$

$$22. \text{ Charge of 1 call in February} = \frac{350}{150} = \frac{7}{3}$$

$$\text{Charge of 1 call in March} = \frac{350 + 50 \times 1.4}{250}$$

$$= \frac{420}{250} = \frac{42}{25}$$

$$\% \text{ cheapness of a call in March} = \frac{\frac{7}{3} - \frac{42}{25}}{\frac{7}{3}} \times 100 = 28\%$$

$$23. \text{ Let the CP be 100 and \% markup be } k\% \text{ then}$$

$$MP = 100 + k$$

$$100 \xrightarrow{k\%} (100 + k) \text{ MP (also expected SP)}$$

$$\text{but actual SP} = \frac{100 + k}{2}$$

$$\therefore \left[\frac{\left(\frac{100 + k}{2} \right)}{k} \right] = \frac{200}{3 \times 100} (= 66.66\%)$$

$$\Rightarrow k = 300$$

$$\text{Therefore} \quad \begin{array}{ll} CP & MP \\ 100 & 400 \end{array} \quad (\text{initially})$$

$$\text{Finally SP} = \frac{400}{2} = 200$$

$$\therefore \text{Discount} = \frac{200}{400} \times 100 = 50\%$$

Alternatively: $MP \rightarrow M$

$$SP \rightarrow \frac{M}{2}$$

$$\text{Discount (\%)} = \frac{M/2}{M} \times 100 = 50\%$$

$$24. \text{ Let the CP and SP of 1 g = Re 1, then}$$

He spends Rs. 2000 and purchase 2200 g and he charges Rs. 2000 and sells 1800 g

$$\text{profit (\%)} = \frac{\text{goods left}}{\text{goods sold}} \times 100$$

$$= \frac{400}{1800} \times 100 = 22\frac{2}{9}\%$$

25.

Fresh grapes		
Water	Pulp	
80%	20%	
4	:	1
Dry grapes		
Water	Pulp	
25%	75%	
1	:	3
5 kg	15 kg] out of 20 kg dry grapes
+ (55 kg)	20%	Required proportion of
80%	1	water and pulp
60 kg	15 kg	

Thus to make dry grapes similar to the fresh grapes, Akram requires 55 kg water with 20 kg of dry grapes.

$$\text{So, the profit (\%)} = \frac{55}{20} \times 100 = 275\%$$

26. Let the total profit be 100

$$\text{Amount left after donation} = 80$$

$$\text{Amount left after reinvestment} = 20$$

$$\text{Now, } \frac{5x}{8} - \frac{3x}{8} = 1200$$

where x is the amount left after reinvestment

$$\frac{2x}{8} = 1200 \Rightarrow x = 4800$$

Therefore, total profit = $4800 \times 5 = 24000$

Alternatively: Go through options.

27. Total cost = Rs. 50,000

$$\text{Total sale price (or revenue)} = 2000 \times 9 + 6000 \times 10 = 78,000$$

$$\text{profit (\%)} = \frac{28000}{50000} \times 100 = 56\%$$

28. The maximum possible profit

= maximum possible difference in SP and CP.

It means SP be maximum and CP be minimum

$$CP_{(\min)} = \text{Rs. } 399 \quad 19m = 399$$

where m is an integer.

Again $SP_{(\max)} = \text{Rs. } 697$, which is very close to 699

Here $697 = 17k$; k is a positive integer.

So, the maximum profit = $697 - 399 = \text{Rs. } 298$

29. Total cost price = $1000 \times 1.2 = \text{Rs. } 1200$

$$\text{Expected selling price} = 700 \times x = 1200 \times 1.1666 = 1400$$

$$\Rightarrow x = \text{Rs. } 2 \text{ per toy}$$

$$\text{Now the real selling price} = 750 \times 2 = \text{Rs. } 1500$$

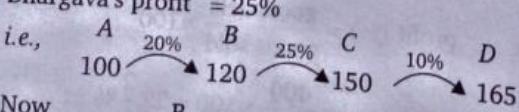
$$\text{Profit} = \text{Rs. } 300 (= 1500 - 1200)$$

$$\therefore \text{Profit \%} = \frac{300}{1200} \times 100 = 25\%$$

30. Chaudhary's profit = 10%

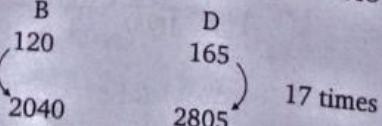
Anupam's profit = 20%

Bhargava's profit = 25%



Now

17 times



31. From the statement, it is clear that he purchases 119 g instead of 100 g. Therefore in this whole transaction he saves $19 + 15 = 34$ g. Thus the profit = $\frac{34}{85} \times 100 = \left(\frac{\text{Goods left}}{\text{Goods sold}} \times 100 \right) = 40\%$

NOTE In this type of question always equate either money or weight for simple solution.

32. You must know that the company is able to deliver only 90% of the manufactured pens. So let K be the manufacturing price of a pen, then total income (including 25% profit) = $(8000 \times K) \times 1.25$ also this same income is obtained by selling 90% manufactured pens at Rs. 10 which is equal to 7200×10 Thus $(8000 \times K) 1.25 = 7200 \times 10$ $\Rightarrow K = \text{Rs. } 7.2 \quad (90\% \text{ of } 8000 = 7200)$

33. Let the number of diaries (produced) be 100 and the cost price of a diary be Re 1 then

$$\text{Total cost incurred} = 100 \times 1 = 100$$

$$\text{Total sale price} = 32 \times 0.75 + 60 \times 1.4 = 108$$

$$\text{Therefore profit} = \text{Rs. } 8$$

Thus there is 8% profit

NOTE Marked price (i.e., expected) = 40% above the cost price.

34. Let the number of sweets be 100 and the cost price of one piece of sweet = Re. 1

$$\text{then, total cost price} = 100 \times 1 = \text{Rs. } 100$$

$$\text{Total sale price} = 40 \times 1.4 + 30 \times 1.2 + 30 \times 1.05 = 123.5$$

$$\therefore \text{profit (\%)} = 23.5\% \quad (= 123.5 - 100)$$

CP	SP	MP
500	576	900

$$\text{Again } SP = MP \left[\left(1 - \frac{r}{100} \right)^2 \right] \quad [r \rightarrow \text{rate of discount in \%}]$$

$$\Rightarrow 576 = 900 \left(1 - \frac{r}{100} \right)^2$$

$$\Rightarrow \frac{24}{30} = \left(1 - \frac{r}{100} \right) \Rightarrow r = 20\%$$

$$\text{Again, new } SP = MP \left(1 + \frac{r}{100} \right)^2 = 900 \left(1 + \frac{20}{100} \right)^2 = 123.6$$

$$\text{New, profit percentage} = \frac{SP - CP}{CP} \times 100 = \frac{129.6 - 500}{500} \times 100 = 159.2\%$$

36. Consider actual price of 1 g goods = Re. 1 then he sells the product equals to Rs. 90 only (10% less weighing). Again MP = Rs. 1.8 and SP = 1.35 for 1 g. Thus he gives the goods worth Rs. 90 and charges Rs. 135 after 25% discount. Thus the profit %

$$= \frac{135 - 90}{90} \times 100 = 50\%$$

37.

$$CP = \frac{100}{120} = \frac{10}{12}$$

(since he purchases 120 g and pays Rs. 100, by assumption actual CP of 1 g = Re. 1)

(Since actual MP = 180, actual SP = 135, with 25% discount and he sells only 90 g instead of 100 g)

$$\text{profit (\%)} = \frac{\frac{18}{12} - \frac{10}{12}}{\frac{10}{12}} \times 100 = 80\%$$

38. Let the actual cost price of an article be Re 1 (in place of x). Now he purchases goods worth Rs. 120 and pays Rs. 80, since 20% discount is allowed.

$$\text{So the CP} = \frac{80}{120} = \frac{2}{3}$$

Again MP = 180, SP = 135 (since 25% discount)

Thus the trader sells goods worth Rs. 90 instead of 100 g and charges Rs. 135. Therefore the effective SP = $\frac{135}{90} = \frac{3}{2}$

$$\text{profit (\%)} = \frac{\frac{3}{2} - \frac{2}{3}}{\frac{2}{3}} \times 100 = 125\%$$

	Anjuli	Bhoomika	Chawla
100	100	100	100
↓ - 20%	↓ - 15%	↓ - 12%	↓ - 13%
80	23.5	85	88
↓ - 5%	↓ - 10%		
76	76.5		76.56

Thus it is clear from the graphical solution that the maximum discount is availed by Anjuli.

NOTE It does not matter that we first decrease by 20% and then by 5% or vice-versa. This concept has been already illustrated in percentage chapter. Try to do it for your concept clarification.

40. CP of one egg (in first case) = $\frac{1}{3} = 33.33$ paise

CP of one egg (in second case) = $\frac{1}{6} = 16.66$ paise

Average CP of one egg = $\frac{(33.33 + 16.66)}{2} = 25$ paise

SP of one egg = $\frac{200}{9}$ (Re. 1 = 100 paise)

$$\text{profit-loss} = \frac{25 - \frac{200}{9}}{25} \times 100 \quad \left(\text{loss\%} = \frac{\text{CP} - \text{SP}}{\text{CP}} \times 100 \right)$$

$$= 11.11\% \text{ loss}$$

41. This question is based on fundamental concept of percentage change.

$$\text{Virendra} = \text{CP}_V \xrightarrow{P\%} \text{SP}_V$$

$$\text{Gurindra} = \text{CP}_G \xrightarrow{Q\%} \text{SP}_G$$

$$\text{CP}_V = \text{CP}_G \quad \text{and} \quad \text{SP}_V = \text{SP}_G$$

$$P \neq Q$$

$$P\% \text{ of } \text{CP}_V = Q\% \text{ of } \text{SP}_G$$

$$Q = 41 \frac{2}{3} \% \text{ of } P = \frac{125}{3} \times \frac{P}{100}$$

$$\text{and} \quad Q = \frac{P}{100 + P} \times 100$$

(From the concept of percentage change)

$$\therefore \frac{P}{100 + P} \times 100 = \frac{125}{3} \times \frac{P}{100}$$

$$\Rightarrow P = 140$$

CP = 100 when SP = 240

Where CP = CP_V = CP_G and SP = SP_V = SP_G

Again SP for Amrindra = 240 + 140% of 240 = 576

42. Let the CP of one article be Rs. 1 then the SP be Re. 1.25

Again the new SP be $(1.25) \times 1.2 = 1.5$

Now, if he sell initially 100 articles, then

$$\text{CP} = 100 \times 1 = \text{Rs. 100}$$

$$\text{SP} = 100 \times 1.25 = \text{Rs. 125}$$

New SP = $75 \times 1.5 = 112.5$ (since 25% articles were abducted)

New profit percentage = 12.5%

43. **Note :** First of all the price of milk does not matter. You can assume any convenient price. Besides it instead of 10 l of milk you can consider 100 l of milk to avoid calculations in decimal.

Now, since water is 16.66% in the mixture of milk, therefore with 100 l pure milk 20 l water is added. Again note that in replacement method the quantity of mixture does not increase except to the variation in ratio of contents.

Again by replacement formula

$$\frac{80}{120} = \frac{100}{120} \left(1 - \frac{K}{120} \right) \Rightarrow K = 24 \text{ l}$$

Thus he replaces 24 l of mixture with water.

(Note the required ratio of milk is to water is 2 : 1. It means in 3 l of new mixture, there will be 2 l of water)

Thus if the price of new mixture be Re 1, then the price of replaced mixture be Rs. 2.

Therefore, total SP = $120 \times 1 + 24 \times 2 = 168$

and CP = $100 \times 1 = 100$

Profit % = 68%

44. Candle Bulb

$$\begin{array}{ll} \text{CP} & a \\ \text{SP} & b \\ \text{and} & \end{array} \quad \begin{array}{ll} & c \\ & d \\ c = 2a & \end{array}$$

$$\text{Profit} = 10(b - a) = 3d$$

$$\text{Loss} = 10(c - d) = 4b$$

$$\text{Profit (\%)} = \frac{3d}{10a} \times 100$$

$$\text{Loss (\%)} = \frac{4b}{10c} \times 100$$

$$\frac{3d}{10a} \times 100 = \frac{4b}{10c} \times 100$$

$$\frac{3d}{a} = \frac{4b}{c} \Rightarrow \frac{3d}{a} = \frac{4b}{2a} \quad (\because c = 2a)$$

$$\frac{b}{d} = \frac{3}{2}$$

45. Let the CP of each motorcycle be Rs. x, then

$$2(1.15x) + 4800 = 2(1.2x)$$

$$0. x = 4800 \Rightarrow x = 48000$$

