Exercise 13.2

Q1 Find the S.P, If

(i) MP = Rs 1300 and discount = 10%

(ii) MP = Rs 500 and Discount = 15%

Sol: (i) MP = Rs 1300, D = 10%

$\therefore$ D = 10% of 1300

$= \frac{10}{100} \times 1300 = Rs\ 130$

hence SP = MP − Discount

$= 1300 - 130 = Rs\ 1170$

(ii) MP = Rs 500, D = 15%

$\therefore$ D = 15% of 500 $= \frac{15}{100} \times 500 = Rs\ 75$

here SP = MP − D

$= 500 - 75 = Rs\ 425$

Q.2 Find the MP If

(i) SP = Rs 1222 and D = 6%

(ii) SP = Rs 495 and Discount = 1%

Sol: $MP = \frac{100}{100 - D\%} \times SP$

(i) $MP = \frac{100}{100-6} \times 1222$

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$\Rightarrow MP = \frac{100}{94} \times \overset{13}{\cancel{1222}} = Rs\ Rs\ 1300$

(ii) $MP = \frac{100}{100-1} \times 495 = \frac{100}{\cancel{9}} \times \overset{5}{\cancel{495}}$

$= Rs\ 500$

Q.3 Find discount percent when

(i) MP = Rs 900 and SP = Rs 873

(ii) MP = Rs 500 and S.P = Rs 425

Sol: (i) $\because$ MP = Rs 900, SP = Rs 873

Discount = MP − SP

= 900 − 873 = Rs 27

$\therefore$ D% $= \frac{\text{Discount}}{MP} \times 100 = \frac{27}{900} \times 100$

$= \frac{27}{9} = 3\%$

(ii) Discount = MP − SP

= 500 − 425 = Rs 75

D% $= \frac{D}{MP} \times 100 = \frac{75}{500} \times 100$

= 15 %

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Q.4 A shop selling Sewing machines offers 3%. discount on all cash purchases. What Cash amount does a customer pay for a Sewing machine the price of which is marked as Rs. 650.

Sol: Discount = 3%. MP = Rs 650

$\therefore D = 3\%$ of 650

$= \frac{3}{100} \times 650 = \frac{39}{2} =$ Rs 19.5

$\therefore$ SP of Machine = MP − Discount

$= 650 - 19.5$

$=$ Rs 630.5

Q.5 The marked price of ceiling fan is Rs 720. During off season, it is sold for Rs 684. Determine the discount percent.

Sol: MP of fan = Rs 720

SP = Rs 684

$\therefore$ Discount = MP − SP

$= 720 - 684 =$ Rs 36

Therefore $D\% = \frac{D}{MP} \times 100$

$= \frac{36}{720} \times \overset{5}{\cancel{100}} = 5\%$.

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Q.6 On the eve of Diwali a saree is sold for Rs 720 after allowing 20% discount. Find its marked price.

Sol: S.P of saree = Rs 720

Discount = 20%

$$MP = \frac{100}{100-D\%} \times SP = \frac{100}{100-20} \times 720$$

$$= \frac{100}{80} \times 720 = Rs\ 900.$$

Q.7 After allowing a discount of $7\frac{1}{2}\%$ on the marked price, an article is sold for Rs 555. Find its marked price.

Sol: SP of article = Rs 555

$$D\% = 7\frac{1}{2}\% = 7.5\%$$

$$MP = \frac{100}{100-D\%} \times SP$$

$$= \frac{100}{100-7.5} \times 555 = \frac{100}{92.5} \times 555$$

$$= Rs\ 600$$

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Q8 A shopkeeper allows his customers 10% off on the marked price of goods and still get a profit of 25%. What is the actual cost to him of an article marked Rs 250?

Sol: Discount = 10%

Profit earned = 25%

MP = Rs 250

$$SP = \frac{100 - D\%}{100} \times MP$$

$$= \frac{100 - 10}{100} \times 250$$

$$= \frac{90}{100} \times 250 = Rs\ 225$$

Now

$$CP = \frac{100}{100 + P\%} \times SP$$

$$= \frac{100}{100 + 25} \times 225$$

$$= \frac{\overset{20}{\cancel{100}}}{\cancel{125}_{5}} \times \cancel{225}^{9} = Rs\ 180$$

Q.9 A shopkeeper allows 20% off on the marked price of goods and still gets a profit of 25%. What is the actual cost to him of an article marked Rs 500?

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Sol: $D = 20\%$, Profit $= 25\%$, $MP = Rs\ 500$

$$\therefore SP = \frac{100 - D\%}{100} \times MP$$

$$= \frac{100-20}{100} \times 500 = \frac{80}{100} \times 500$$

$$= Rs\ 400$$

Now

$$CP = \frac{100}{100 + P\%} \times SP$$

$$= \frac{100}{100+25} \times 400 = \frac{100}{125} \times 400$$

$$= \frac{4}{5} \times 400 = Rs\ 320$$

Q.10 A tradesman marks his goods at such a price that after allowing a discount of 15%, he makes a profit of 20%. what is marked price of an article whose cost price is Rs 170.

Sol: Discount $= 15\%$ Profit $= 20\%$ $MP = ?$

$CP = Rs\ 170$

$$\therefore SP = \frac{100 + P\%}{100} \times CP$$

$$= \frac{100+20}{100} \times 170 = \frac{120}{100} \times 170$$

$$= Rs.\ 204$$

Now $$MP = \frac{100}{100 - D\%} \times SP$$

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$= \frac{100}{100-15} \times 204 = \frac{100}{85} \times 204$

$= \frac{20}{17} \times 204^{12}$

$= Rs\ 240$

$\therefore$ MP of article $= Rs\ 240.$

Q.11 A shopkeeper marks his goods in such a way that after allowing a discount of 25% on the Marked price, he still makes a profit of 50%. Find the ratio of the C.P to the M.P.

Sol: Discount = 25% Profit = 50%

Let CP of article $= Rs\ 100.$

Then $SP = \frac{100+50}{100} \times 100 = \frac{150}{100} \times 100$

$= Rs\ 150$

Now $MP = \frac{100}{100 - D\%} \times SP$

$= \frac{100 \times 150}{100-25} = \frac{100 \times 150}{75}$

$= Rs\ 200$

$\therefore \frac{CP}{MP} = \frac{100}{200}$

$= \frac{1}{2} = 1:2$

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Q.12 A cycle dealer offer a discount of 10% and still makes a profit of 26%. What is the actual cost to him of a cycle whose marked price is Rs 840?

Sol: ∵ Discount = 10%, Profit = 26%

MP = Rs 840

$\therefore SP = \frac{100 - D\%}{100} \times MP$

$= \frac{100 - 10}{100} \times 840 = \frac{90}{100} \times 840$

$= Rs.\ 756$

Now CP of cycle $= \frac{100}{100 + P\%} \times SP$

$= \frac{100}{100 + 26} \times 756 = \frac{100}{\cancel{126}_{6}} \times \cancel{756}$

$= Rs\ 600$

Q.13 A shopkeeper allows 23% Commission on his advertised price and still makes a profit of 10%. If he gain Rs 56 on one item. Find his advertised price.

Sol: Profit = Rs 56, Discount = 23%

Profit = 10% let CP = Rs x

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$$\text{Profit} = 10\% \text{ of } x$$

$$\Rightarrow \quad 56 = \frac{10}{100} \times x$$

$$\Rightarrow \quad x = \text{Rs } 560$$

$\therefore$ CP of item = Rs 560

Now SP = CP + Profit

$= 560 + 56$

$= \text{Rs } 616$

$$MP = \frac{100 \times SP}{100 - D\%}$$

$$= \frac{100 \times 616}{100 - 23} = \frac{100 \times 616}{77} = \text{Rs } 800$$

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Q.14 A shopkeeper marks his goods at 40% above the cost price but allows a discount of 5% for cash payment to his customers. What actual profit does he make, if he receives Rs 1064 after paying the discount?

Sol: Let the cost price = x rupees.

$$\text{Marked price} = x + 40\% \text{ of } x$$

$$= x + \frac{40x}{100} = \frac{140x}{100}$$

$$\text{Discount} = 5\% \text{ of } \frac{140x}{100} = \frac{5}{100} \times \frac{140x}{100}$$

$$= \frac{7x}{100}$$

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SP = MP − Discount

$= \frac{140x}{100} - \frac{7x}{100} = Rs\ \frac{133x}{100}$

Given SP = Rs 1064

$\Rightarrow \frac{133x}{100} = 1064 \Rightarrow x = \frac{1064 \times 100}{133}$

$= Rs\ 800$

$\therefore$ Cost price = Rs 800

Profit = SP − CP

= 1064 − 800 = Rs 264.

Q.15 By selling a pair of earings at a discount of 25%. on the marked price, a jeweller makes a profit of 16%. If the profit is Rs 48, what is the cost price? what is the marked price and the price at which the pair was eventualy purchased?

Sol: Discount = 25%. Profit % = 16%., Profit = 48

$\therefore$ Profit % $= \frac{P}{CP} \times 100$

$\Rightarrow 16 = \frac{48}{CP} \times 100$

$\Rightarrow CP = \frac{48 \times 100}{16} = Rs\ 300$

$\therefore$ SP = CP + P

= 300 + 48 = Rs 348.

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additional discount = 25%.

$\therefore$ MP = $\frac{100}{100-D\%} \times SP$

$= \frac{100 \times 348}{100-25} = \frac{100 \times 348}{75}$

$=$ Rs 464.

$\therefore$ MP = Rs 464, CP = Rs 300, final selling price = Rs 348.

Q.16 A publisher gives 32% discount on the printed price of a book to booksellers. What does a bookseller pay for a book whose printed price is Rs 275.

Sol: Discount = 32%. MP = Rs 275

$SP = \frac{100 - D\%}{100} \times MP$

$= \frac{100-32}{100} \times 275 = \frac{\overset{17}{\cancel{68}} \times \overset{11}{275}}{\underset{25}{\cancel{100}}}$

$=$ Rs 187.

Q.17 After allowing a discount of 20% on the marked price of a lamp, a trader loses 10%. By what percentage is the marked price above the cost price?

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Sol: $D = 20\%$, loss $= 10\%$.

Let CP $=$ Rs 100

loss $= 10\%$ of 100 $=$ Rs 10

$\therefore$ SP $=$ CP $-$ loss

$= 100 - 10 = $ Rs 90.

Now, $MP = \frac{100 \times SP}{100 - D\%} = \frac{100 \times 90}{100 - 20}$

$= \frac{100 \times 90}{80} = $ Rs $\frac{900}{8}$.

$\therefore$ Difference in MP and CP

$= \frac{900}{8} - 100 = \frac{900 - 800}{8}$

$= $ Rs $\frac{100}{8} = \frac{25}{2}$

$\%$ above $= \frac{25}{2 \times 100} \times 100 = 12\frac{1}{2}\%$

Q 18 The list price of a table fan is Rs 480 and it is available to a retailer at 25% discount. For how much should a retailer sell it to gain 15%.

Sol: Given, list price $=$ Rs 480

$D = 25\%$.

Cost price of the retailer is $= \frac{75}{100} \times 480$

CP $=$ Rs 360

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Now, the retailer sells the fan to get 15%.

$$\text{Gain \%} = \frac{\text{gain}}{CP} \times 100$$

$$SP = \frac{115}{100} \times CP.$$

$$\Rightarrow \quad SP = \frac{115}{100} \times 360 = 414$$

Q.19 Rohit buys items at 25% discount on the marked price. He sells it for Rs 660, making a profit of 10%. What is the marked price of the item?

Sol: Discount = 25%.

SP = Rs 660, Profit = 10%.

$$CP = \frac{100}{100+P\%} \times SP = \frac{100}{110} \times 660$$

$$= \text{Rs } 600$$

Now $$MP = \frac{100}{100-25} \times 600$$

$$= \frac{60000}{75} = \text{Rs } 800.$$

Q.20 A cycle merchant allows 20% discount on the marked price of the cycles and still makes a profit of 20%. If he gains Rs 360 over the sale of one cycle, find the marked price of the cycle.

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Sol: Discount allowed = 20%.

Profit earned = 20%

gain = Rs 360.

let CP = Rs x

then 20% of x = 360

$\Rightarrow \frac{20}{100} \times x = 360$

$\Rightarrow \frac{x}{5} = 360 \Rightarrow x = 360 \times 5$

= Rs 1800.

∴ SP of cycle = 1800 + 360

= Rs 2160.

$MP = \frac{100}{100 - D\%} \times SP$

$= \frac{100}{100-20} \times 2160 = \frac{100}{80} \times 2160^{27}$

= Rs 2700

∴ MP of cycle = Rs 2700

Q.21 Jyoti and Meena run a ready made garment shop. They mark the garments at such a price that even after allowing a discount of 12.5%, they make a profit of 10%. Find the marked price of a suit which costs them Rs 470.

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Sol: Discount allowed = 12.5 %.

Profit = 10 %.

CP = Rs 1470

$$\text{Profit} = \frac{10}{100} \times 1470 = \text{Rs } 147$$

$$\therefore SP = 1470 + 147$$

$$= \text{Rs } 1617$$

Now, $$MP = \frac{100}{100 - D\%} \times SP$$

$$= \frac{100}{100 - 12.5} \times 1617$$

$$= \frac{161700}{87.5} = \text{Rs } 1848$$

∴ The Marked price = Rs 1848

Q.22 What price should Aslam mark on a pair of shoes which costs him Rs 1200 so as to gain 12% after allowing a discount of 16%?

Sol: Cost of pair of shoes = Rs 1200

gain = 12%

$$\therefore \text{gain} = \frac{12}{100} \times 1200 = \text{Rs } 144$$

SP = Rs 1200 + Rs 144

= Rs 1344

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$\therefore$ MP of pair of shoes $= \frac{100}{100-16} \times 1344$

$= \frac{100}{84} \times 1344$

$= Rs\ 1600$

Q.23 Jasmine allows 4% discount on the marked price of her goods and still earns a profit of 20%. What is the cost price of a shirt for her marked at Rs 850?

Sol: Discount = 4%

Profit = 20%

MP = Rs 850

Discount = 4% of 850

$= \frac{4}{100} \times 850 = \frac{3400}{100} = Rs\ 34$

$\therefore$ SP = MP − Discount

$= 850 - 34 = Rs\ 816$

Now $CP = \frac{100}{100+P} \times SP = \frac{100 \times 816}{120}$

$= Rs\ 680$

Q.24 A shopkeeper offer 10% off-season discount to the customers and still makes a profit of 26%. What is the cost price for the shopkeeper on a pair of shoes marked at Rs 1120?

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Sol: Discount offered = 10%

Profit earned = 26%

MP of shoes = Rs 1120

Discount = 10% of 1120

$= \frac{10}{100} \times 1120 =$ Rs 112

$\therefore$ SP = MP − Discount

= 1120 − 112

= Rs 1008

Now CP $= \frac{100}{100+P\%} \times SP = \frac{100 \times 1008}{100+26}$

$= \frac{100 \times 1008}{126}$

= Rs 800

Q25 A lady shopkeeper allows her customers 10% discount on the marked price of the goods and still gets a profit of 25%. What is the cost price of a fan for her marked at Rs. 1250?

Sol: M.P of fan = Rs 1250

Discount = 10%

Profit = 25%

$SP = \frac{100 - D\%}{100} \times MP$

$= \frac{100-10}{100} \times 1250 = \frac{90}{100} \times 1250$

= Rs. 1125

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Now $CP = \frac{100 \times SP}{100 + P\%}$

$= \frac{100}{100+25} \times 1125$

$= \frac{100}{125} \times 1125^{9}$

$= Rs\ 900$

$\therefore$ CP of fan = Rs 900

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