

$$(1) \quad \frac{25}{100} \times 200 \Rightarrow 50 \text{ (b)}$$

$$(2) \quad \frac{40}{100} \times x = 80 \Rightarrow x = 200 \text{ (c)}$$

$$(3) \quad \frac{75}{100} \times x = 150 \Rightarrow x = 200 \text{ (b)}$$

$$(4) \quad \frac{15}{100} \times 120 = 18 \text{ (c)}$$

$$(5) \quad \frac{30}{100} \times x = 90 \Rightarrow x = 300 \text{ (c)}$$

$$(6) \quad \frac{250-200}{200} \Rightarrow \frac{50}{200} \times 100 \Rightarrow 25\% \text{ (b)}$$

$$(7) \quad \frac{50000-40000}{40000} \times 100 \Rightarrow \frac{1}{4} \times 100 \Rightarrow 25\% \text{ (b)}$$

$$(8) \quad \frac{10000-8000}{10000} \times 100 \Rightarrow \frac{1}{5} \times 100 \Rightarrow 20\% \text{ (c)}$$

$$(9) \quad \frac{500-400}{500} \times 100 \Rightarrow \frac{1}{5} \times 100 \Rightarrow 20\% \text{ (c)}$$

$$(10) \quad \frac{600 - 450}{600} \times 100 \Rightarrow \frac{1}{4} \times 100 \Rightarrow 25\% \text{ (c).}$$

$$(11) \quad \begin{array}{l} 30\% \text{ of } 400 = 120 \\ 40\% \text{ of } 300 = 120 \end{array} \quad (c) \text{ Both are equal.}$$

$$(12) \quad \text{Savings} = 40\% = 8000$$

$$8000 = \frac{40}{100} \times \pi \Rightarrow \pi = 20000 \text{ (c)}$$

$$(13) \quad \text{Let } B = 100, \text{ so } A = 120.$$

$$\frac{120 - 100}{120} \times 100 \Rightarrow \frac{1}{6} \times 100 \Rightarrow 16.67\% \text{ (b)}$$

$$(14) \quad \text{Assume that original price} = \text{initial consumption} = 100$$

So, new price = 125, and to keep the consumption = 100,

$$\frac{125 - 100}{125} \times 100 \Rightarrow \frac{1}{5} \times 100 \Rightarrow 20\% \text{ (a)}$$

$$(15) \quad \text{Let } B's \text{ income} = 100, \text{ so, } A's \text{ income} = 140$$

$$\frac{140 - 100}{140} \times 100 \Rightarrow \frac{2}{7} \times 100 \Rightarrow 28.57\% \text{ (a)}$$

(16) Let the original price be 100,

$$100 \xrightarrow[\substack{+20\% \\ +20}]{+20\%} 120 \xrightarrow[\substack{-10\% \\ -12}]{-10\%} 108 \quad (b) \text{ 8\% increase}$$

(17) Original number = 100

$$100 \xrightarrow[\substack{+30\% \\ +30}]{+30\%} 130 \xrightarrow[\substack{-20\% \\ -26}]{-20\%} 104 \quad (a) \text{ 4\% increase}$$

(18) Original population = 100

$$100 \xrightarrow[\substack{+25\% \\ +25}]{+25\%} 125 \xrightarrow[\substack{-20\% \\ -25}]{-20\%} 100 \quad (a) \text{ 0\%}$$

(19) Original price = 100

$$100 \xrightarrow[\substack{+40\% \\ +40}]{+40\%} 140 \xrightarrow[\substack{-30\% \\ -42}]{-30\%} 98 \quad (d) \text{ 2\% decrease}$$

(20) Original salary = 100

$$100 \xrightarrow[\substack{+20\% \\ +20}]{+20\%} 120 \xrightarrow[\substack{-10\% \\ -12}]{-10\%} 108 \quad (a) \text{ 8\% increase}$$

(21) let C.P. = 100, so, S.P. = 125  $\Rightarrow$  (b) 125%



(22) M.P. = 500

$$500 \xrightarrow{-10\%} 450 \Rightarrow \frac{92}{100} \times \frac{108}{100} \times 450$$
$$\searrow \Rightarrow \frac{108}{100} \times x = 450$$
$$x \approx 420 \text{ (b)}$$

(23) let C.P. = 100, so, profit = 20 and S.P. = 120

$$\frac{20}{120} \times 100 \Rightarrow \frac{1}{6} \times 100 \Rightarrow 16.67\% \text{ (a)}$$

(24)  $\frac{1200 - 960}{1200} \Rightarrow \frac{240}{1200} \times 100 \Rightarrow 20\% \text{ (b)}$

(25) C.P. = 500, S.P. = 650

$$\frac{650 - 500}{500} \times 100 \Rightarrow \frac{150}{500} \times 100 \Rightarrow 30\% \text{ (c)}$$

(26) let B's income be 100, so A's income = 120

$$\frac{120 - 100}{120} \times 100 \Rightarrow 16.67\% \text{ (a)}$$

(27) let boys be 30, so girls = 20

$$\frac{30}{30+20} \times 100 \Rightarrow 60\%$$

(28)  $\frac{250000 - 200000}{200000} \times 100 \Rightarrow \frac{1}{4} \times 100 \Rightarrow 25\% \text{ (b)}$

(29) First candidate = 65%, so, 2<sup>nd</sup> candidate = 100 - 65  
 $\Rightarrow 35\%$   
 $\rightarrow$  won by 3000 votes

So,  $65\% - 35\% = 30\%$  (Vote difference)  
 $30\% = 3000$

So, Total votes  $\Rightarrow 10000$

(30) Original Price = 100

$$100 \xrightarrow[-30]{-30\%} 70 \xrightarrow{+x\%} 100$$

$$\frac{100-70}{70} \times 100 \Rightarrow 42.85\% \text{ (b)}$$

(31) Original number = 100

$$100 \xrightarrow[+50]{+50\%} 150 \xrightarrow[-75]{-50\%} 75 \text{ (b) } 25\% \text{ decrease}$$

(32) let  $B = 100 \text{ cm}$ , so,  $A = 120 \text{ cm}$ .

$$\frac{120 - 100}{100} \times 100 \Rightarrow \frac{1}{6} \times 100 \Rightarrow 16.67\% (a)$$

(33)  $\frac{30}{100} \times x = 90 \Rightarrow x = 300 \xrightarrow{60\%} 180 (c)$

If  $30\% = 90 \rightarrow 60\% = 2 \times 90 = 180 (c)$ .

(34) Savings =  $100 - 75 \Rightarrow 25\%$

$$\frac{25}{100} \times x = 5000 \Rightarrow x = 20000 (c)$$

(35) let original price = initial expenditure = 100

new price = 120, so to keep expenditure = 100,

$$\frac{120 - 100}{100} \times 100 \Rightarrow \frac{1}{6} \times 100 \Rightarrow 16.67\% (a)$$

(36) Original Price = 100

$$100 \xrightarrow[\text{+20}]{+20\%} 120 \xrightarrow[-12]{-10\%} 108$$

(a) 8% increase



(37) let C.P. = 100, so, M.P. = 125  $\xrightarrow{(20\% \text{ Discount})}$

$$S.P. = M.P. - \text{Discount}$$

$$= 125 - 20\% \text{ of } 125$$

$$\Rightarrow 125 - \frac{20}{100} \times 125$$

$$(C.P. = S.P.)$$

$$S.P. = 125 - \underline{25} \Rightarrow 100 \quad (a) \quad 0\%$$

(38) C.P. = 500, Loss % = 20

$$500 \times \frac{20}{100} \Rightarrow 100 = \text{Loss}$$

$$S.P. = C.P. - \text{Loss} \Rightarrow 500 - 100 \Rightarrow 400 \quad (c)$$

(39) Original salary = 100

$$100 \xrightarrow[+10]{+10\%} 110 \xrightarrow[-11]{-10\%} 99 \quad (b) \quad 1\% \text{ decrease}$$

(40) Passing Marks = 200 + 20 = 220

$$\frac{40}{100} \times x = 220 \Rightarrow x = 550 \quad (b)$$

(41)  $\text{Savings \%} = 100 - 20 - 30 - 10 = 40\%$   
 $\text{Savings} = 18000$

$$\frac{40}{100} \times x = 18000 \Rightarrow x = 45000 \text{ (b)}$$

(42) Original cost = 100

$$100 \xrightarrow[30]{+30\%} 130 \xrightarrow[-39]{-30\%} 91 \text{ (b) } 9\% \text{ decrease}$$

(43) Current population = 10000

$$10000 \xrightarrow[+1000]{+10\%} 11000 \xrightarrow[+1100]{+10\%} 12100 \xrightarrow[+1210]{+10\%} 13310 \text{ (a)}$$

(44)  $\frac{15}{100} \times A = \frac{20}{100} \times B$

$$\Rightarrow \frac{3}{4} \times A = \frac{1}{5} \times B \Rightarrow \frac{A}{B} = \frac{4}{3} \Rightarrow A:B = 4:3 \text{ (b)}$$

(45) C.P. = 800, Profit = 25% of 800 = 200

So, S.P. = 800 + 200 = 1000 (b)



(46)  $C.P. = 200$  ,  $S.P. = 250$

$$\frac{250 - 200}{200} \times 100 \Rightarrow 25\% \text{ (b)}$$

(47)  $S.P. = 720$  , Profit = 20%

$$\frac{120}{100} \times x = 720 \Rightarrow x = 600 \text{ (a)}$$

(48)  $C.P. = 500$  , Loss = 15% of 500 = 75

$$S.P. = C.P. - \text{Loss} \Rightarrow S.P. = 500 - 75 = 425 \text{ (b)}$$

(49)  $C.P. = 1500$  , Loss = 10% of 1500 = 150

$$S.P. = C.P. - \text{Loss} \Rightarrow S.P. = 1500 - 150 = 1350 \text{ (c)}$$

(50) Let the  $C.P. = 100$  , so,  $M.P. = 130$

$$\text{Discount} = 10\% \text{ of } 130 = 13$$

$$S.P. = M.P. - \text{Discount} = 130 - 13 \Rightarrow S.P. = 117 \text{ (a) } 17\%$$