

Assignment - 1.

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1. What is 25% of 200?

$$\frac{1}{4} \times 200 = \underline{50}$$

(2) If 40% of a no. is 80, what is the no.?

$$\frac{4}{10} \times x = 80$$

$$x = \underline{200}$$

(3) 75% of a no is 150 what is no?

$$\frac{3}{4} \times x = 150$$

$$x = \underline{200}$$

(4) 15% of 120 ?

$$\begin{array}{r} 120 \\ \downarrow 10\% \\ 12 \end{array}$$

$$15\% \rightarrow 12 + 6 = \underline{18}$$

$$\frac{15}{100} = \frac{x}{120}$$

$$15 \times (120) = 100x$$

$$15 (120) = 100x$$

$$\frac{1800}{100} = \frac{100x}{100}$$

$$x = \underline{18}$$

(5) If 30% of a no. is 90, then the no is:

$$\frac{3}{10} \times x = 90$$

$$x = \underline{300}$$

(6)

- (6) The price of product increase from 200 to 250. What is the percentage

$$\begin{aligned} \text{Date} & \quad \text{Page} \\ \% \text{ increase} &= \frac{50}{200} \times 100 \\ &= \underline{\underline{25\%}} \end{aligned}$$

- (7) A salary from Rs 40,000 to 50,000. What is % increase:

$$\begin{aligned} & \begin{array}{ccc} 40,000 & & 50,000 \\ & \nearrow & \\ & +10,000 & \end{array} \\ \% \text{ increase} &= \frac{10,000}{40,000} \times 100 \\ &= \underline{\underline{25\%}} \end{aligned}$$

- (8) The population of a town decreased from 10,000 to 8,000. What is % decrease:

$$\begin{aligned} & \begin{array}{ccc} 10,000 & & 8,000 \\ & \searrow & \\ & -2,000 & \end{array} \\ \% \text{ decrease} &= \frac{2,000}{10,000} \times 100 \\ &= \underline{\underline{20\%}} \end{aligned}$$

- (9) A book's price drops from 500 to 400. What is the percent decrease?

$$\begin{aligned} & \begin{array}{ccc} 500 & & 400 \\ & \searrow & \\ & -100 & \end{array} \\ \% \text{ decrease} &= \frac{100}{500} \times 100 \\ &= \underline{\underline{20\%}} \end{aligned}$$

- (10) CP = 600 & SP = 450 % loss.

$$\begin{aligned} \text{Loss} &= 150 \\ \% \text{ loss} &= \left(\frac{150}{600} \right) \times 100 \\ &= \underline{\underline{25\%}} \end{aligned}$$

(11) which is greater?

30% of 400 or 40% of 300.

$$\frac{3}{10} \times 400$$

120

$$\frac{4}{10} \times 300$$

120

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Both equal.

(12) A person spends 60% of his income and saves Rs 8000. What is his total income?

$$I = E + S$$

$$100\% = 60\% + 40\%$$

Let ~~savings~~ income be x.

$$\text{Savings} = x - (60\% \text{ of } x)$$

$$8000 = x - \frac{60}{100}x$$

$$8000 = \frac{40}{100}x$$

$$x = \frac{8000}{0.4} = \underline{\underline{20,000}}$$

$$\frac{4}{10}x = 8000$$

$$x = 20,000$$

(13) If A is 20% more than B, then B is how much less than A?

$$\begin{array}{ccc} A & & B \\ 120 & & 100 \\ \hline & & -20 \end{array}$$

$$\frac{20}{100} \times 100$$

$$\underline{\underline{20}}$$

(14) If the price of sugar is increased by 25%, by how much should be consumption be reduced to maintain the same expense?

$$100 \quad 125$$

reduction% =

$$\left(\frac{25}{100+25} \right) \times 100$$

$$\frac{25}{125} \times 100 = \underline{\underline{20\%}}$$

15- If A's income is 40% more than B's income, then B's income is 'what' % less than A's?

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A	B	% change
140	100	$\frac{40}{140} \times 100$
		$= \frac{2}{7} \times 100$
		$= 14.28$

(16) The price of an item is increased by 20% & then decreased by 10%. What is the net percentage change.

~~% change = $\frac{1}{5} - \frac{1}{10} = \frac{2-1}{10} = \frac{1}{10} = 10\%$~~

100	%	change
↓ +20%		
120		
-12 ↓ -10%		
108		

$$\% \text{ change} = \frac{8}{100} \times 100 = 8\% \text{ increase}$$

(17) A no is increased by 30% & then decreased by 20%. What is % final % change?

100x	%	change
↓ +30%		
130		
-26 ↓ -20%		
104		

$$\frac{4}{100} \times 100 = 4\%$$

(18) If the population of a city increases by 25% & then decrease by 20%, what is the net % change.

100	%	change
↓ +25%		
125		
-25 ↓ -20%		
100		

$$\frac{100-100}{100} = 0\%$$

15- If A's income is 40% more than B's income, then B's income is 'what' % less than A's?

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A	B	% change
140	100	$\frac{40}{140} \times 100$
		$= \frac{2}{7} \times 100$
		$= 28.57$

(16) The price of an item is increased by 20% & then decreased by 10%. What is the net percentage change.

~~% change = $\frac{1}{5} - \frac{1}{10} = \frac{1}{10}$~~

100	%	change
↓ +20%		
120		
↓ -10%		
108		

$$\% \text{ change} = \frac{8}{100} \times 100 = 8\% \text{ increase}$$

(17) A no is increased by 30% & then decreased by 20%. What is % final % change?

100x	%	change
↓ +30%		
130		
↓ -20%		
104		

$$\frac{4}{100} \times 100 = 4\%$$

(18) If the population of a city increases by 25% & then decrease by 20%, what is the net % change.

100	%	change
↓ +25%		
125		
↓ -20%		
100		

$$\frac{100-100}{100} = 0\%$$

(19)

$$\begin{array}{r}
 100x \\
 \downarrow +40\% \\
 140 \\
 -42 = 30\% \\
 \downarrow \\
 98
 \end{array}$$

$$\frac{2}{100} \times 100$$

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(20)

$$\begin{array}{r}
 100x \\
 \downarrow +20\% \\
 120 \\
 -12 = 10\% \\
 \downarrow \\
 108
 \end{array}$$

$$\frac{8}{100} \times 100 = 8\%$$

(21)

$$\text{Profit} = \text{SP} - \text{CP}$$

Set CP be 100

$$\text{Profit} = 25\% \text{ of CP}$$

$$25\% \text{ of } 100$$

$$= 25$$

$$\text{SP} = \text{CP} + \text{Profit}$$

$$100 + 25 = 125$$

$$\frac{\text{SP}}{\text{CP}} \times 100 = \frac{125}{100} \times 100 = 125\%$$

(22)

$$\begin{array}{r}
 \text{MP} = 500 \\
 \downarrow -10\% \\
 \text{SP} = 450
 \end{array}$$

$$\text{SP} = 450$$

$$\begin{array}{r}
 450 \\
 -36 = 10\% \\
 \downarrow \\
 414
 \end{array}$$

$$\text{SP} = \text{CP} + 0\% \text{ of CP}$$

$$450 = \text{CP} \left(1 + \frac{0}{100}\right)$$

$$\text{CP} = \frac{450}{1.00} = 450$$

$$\begin{array}{r}
 450 \\
 \times 8 \\
 \hline
 3600 \\
 \times 9 \\
 \hline
 4050 \\
 \hline
 236
 \end{array}$$

(23)

$$20\% \text{ of CP} = \frac{20}{100} \times \text{CP} = 0.2 \text{CP}$$

$$\text{SP} = \text{CP} + \text{Profit} = 1.2 \text{CP}$$

$$\text{Profit percentage on SP} = \frac{\text{Profit}}{\text{SP}} \times 100$$

$$= \frac{0.2 \text{CP}}{1.2 \text{CP}} \times 100$$

$$= \frac{20}{12} \times 100 = 16.67$$

(24) $MP = 1200$
 $SP = 960$
 $D = MP - SP$
 $= 240$

$$d\% = \frac{240}{1200} \times 100 = \underline{\underline{20\%}}$$

(25) $CP = 500$
 $SP = 650$
 $Profit = 150$

$$\% Profit = \frac{150}{500} \times 100 = \underline{\underline{30\%}}$$

(26)

A	B
120	100
<hr/>	
-20	

$$\frac{20}{120} \times 100 = \underline{\underline{16.67}}$$

(27)

B	4
3x	2xy

$$\frac{3}{5} \times 100 = \underline{\underline{60\%}}$$

(28)

2,50,000	2,50,000
<hr/>	
50,000	

$$\frac{50,000}{200,000} \times 100 = 25\%$$

(29)

100
65%
35%

$$65\% \text{ of } x - 35\% \text{ of } x = 3000$$

$$0.65x - 0.35x = 3000$$

$$x = 10,000$$

(30)

100%
↓ -30%
70%

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$$70 + x\% \text{ of } 70 = 100$$

$$70 + \frac{7x}{100} = 100$$

$$\frac{7x}{100} = 30$$

$$x = \frac{30 \times 100}{7} = 42.85\%$$

(31)

100%

↓ -25%

75

↓ -50%

37.5

$$\frac{25}{100} \times 100$$

= 25% decrease

(32)

A → 120

B = 100

$$\frac{20}{120} \times 100$$

$$= 16.67\%$$

(33)

30% of x = 90

$$\frac{3}{10}x = 90$$

$$x = 300$$

60% of 300

$$\frac{6}{10} \times 300 = 180$$

(34)

Saving = Income - Expenditure

$$5000 = x - \frac{3}{4}x$$

x = 5000

$$x = 20,000$$

20

old cp =

(35)

100

↓ +20%

New cp =

120%

→ 100x

$$= 10,000$$

Expenses

→ 100x

$$= 10,000$$

$$100,000$$

$$\text{Reduction} = 100 - 83.33$$

$$120x = 10,000$$

$$x = 83.33$$

$$= 16.67$$

(36)

$$\begin{array}{l}
 100\% \\
 \downarrow +20\% \\
 120\% \\
 \downarrow -10\% \\
 108
 \end{array}$$

$$\frac{8}{100} \times 100 = 8\% \text{ increase}$$

(37)

$$\begin{array}{l}
 CP = 100 \\
 \downarrow +25\% \\
 MP = 125 \\
 \downarrow -20\% \\
 SP = 100
 \end{array}$$

No loss

(38)

$$\begin{array}{l}
 CP = 500 \\
 \downarrow -20\% \\
 SP = 400
 \end{array}$$

$$\frac{100}{500 \times 4} = 400$$

(39)

$$\begin{array}{l}
 100 \\
 \downarrow +10\% \\
 110 \\
 \downarrow -10\% \\
 99
 \end{array}$$

$$\frac{110 \times 9}{100} = 99$$

$$\frac{1}{100} \times 100 = -1\%$$

(40)

$$\begin{array}{l}
 \text{Pass marks} = 200 + 20 \\
 = 220
 \end{array}$$

$$220 \rightarrow 40\%$$

$$40\% \rightarrow 220$$

$$1\% \rightarrow \frac{220}{40} = \frac{11}{2} = 5.5$$

$$100\% \times$$

$$100 \times 5.5 = 550$$

(41) Exp:-
 $20\% + 30\% + 10\%$

60%

Saving $40\% \rightarrow 10000$
 $11\% \rightarrow \frac{10000}{100} \cdot 11 = 1100$

Income $100\% = 45000$

(42) 100%

$\downarrow +30\%$

130

$-30\% \downarrow$

91

$= -\frac{9}{100} \times 100 = 9\% \text{ decrease}$

(43) $10,000$
 $\downarrow 10\%$

I year \rightarrow II year \rightarrow III year
 $\left(10,000 \times \frac{11}{10} \right) \times \frac{11}{10} \times \frac{11}{10}$
 $11,000 \times \frac{11}{10}$
 $(12,100) \times \frac{11}{10}$
13310

(44) $15\% \text{ of } A = 20\% \text{ of } B$

$\frac{3}{20} A = \frac{1}{5} B$

$15A = 4B$

$3A = 4B$

$\frac{A}{B} = \frac{4}{3} = 4:3$

(45) $CP = 800$. $SP = ?$

Profit = 25%

$SP = 25\% \text{ of } 800 + 800$

$= 200 + 800$

$= \underline{\underline{1000}}$

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(46) $CP = 200$. $SP = 250$.

Profit = $250 - 200 = 50$

Profit % = $\frac{50}{200} \times 100 = 25\%$

(47) $SP = 720$. Profit = 20% .

~~CP =~~

Profit = $SP - CP$.

20% of $x = 720 - x$.

$\frac{1}{5}x = 720 - x$.

$\frac{1}{5}x + x = 720$.

$\frac{6x}{5} = 720 \Rightarrow 6x = 3600$
 $x = \underline{\underline{600}}$

$CP = \underline{\underline{600}}$

(48) Loss = 15% , $CP = 500$. $SP = ?$

$SP = CP - \text{Loss\%}$

$= 500 - 15\% \text{ of } 500$

$= 500 - \frac{3}{20} \times 500$

$SP = 500 - 75 = \underline{\underline{425}}$

(49) Loss = 10% , $CP = 1500$

$SP = 1500 - 150$

$= \underline{\underline{1350}}$

(50) $MP = 130$ $\xrightarrow[\text{-10\%}]{\text{discount}}$ $117 = SP$

$CP = 100$ $\xrightarrow[\text{gain\%}]{\text{17\%}}$ $\frac{17}{100} \times 100 = \underline{\underline{17\%}}$