

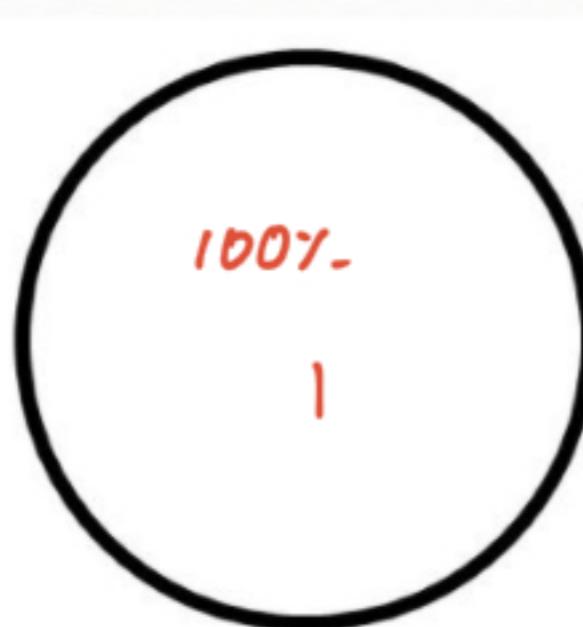
# Neeraja Anand V



$$x\% \Rightarrow \frac{x}{100}$$

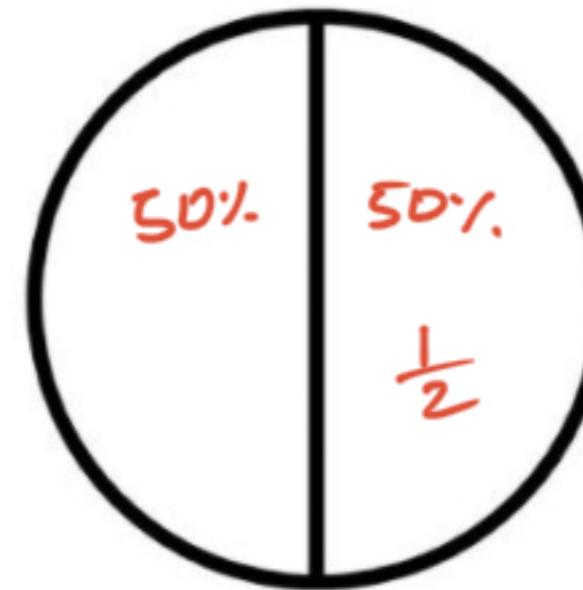
$$\frac{9}{9} \times 100 = y.$$

~~$\frac{12.5}{100}$~~

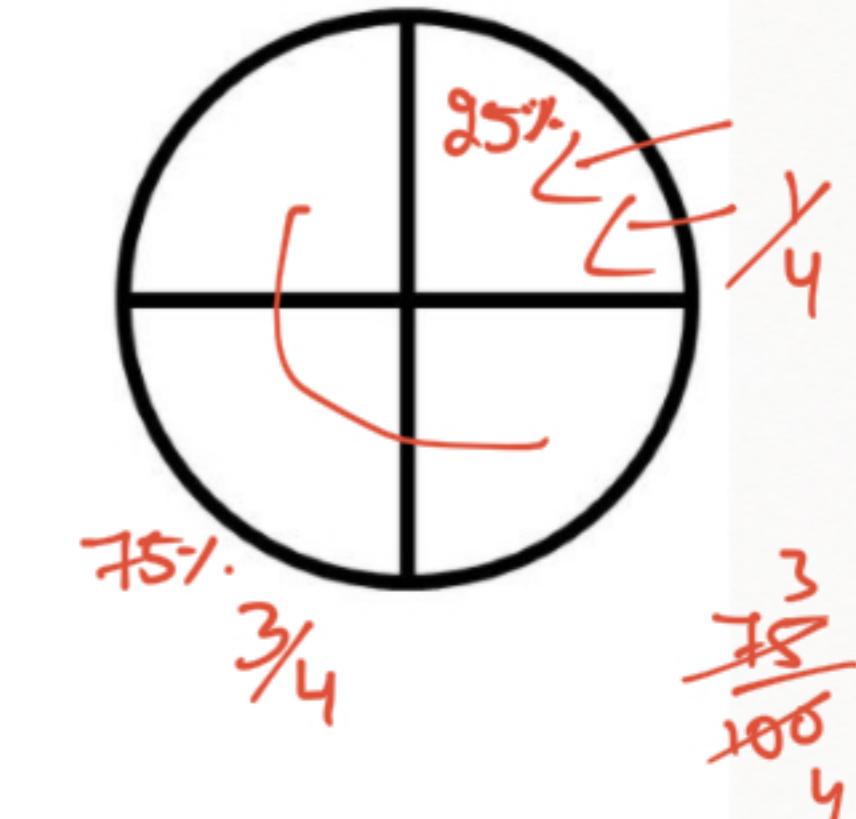


$$\frac{100}{100} = 1$$

$$\frac{50}{100} = \frac{1}{2}$$

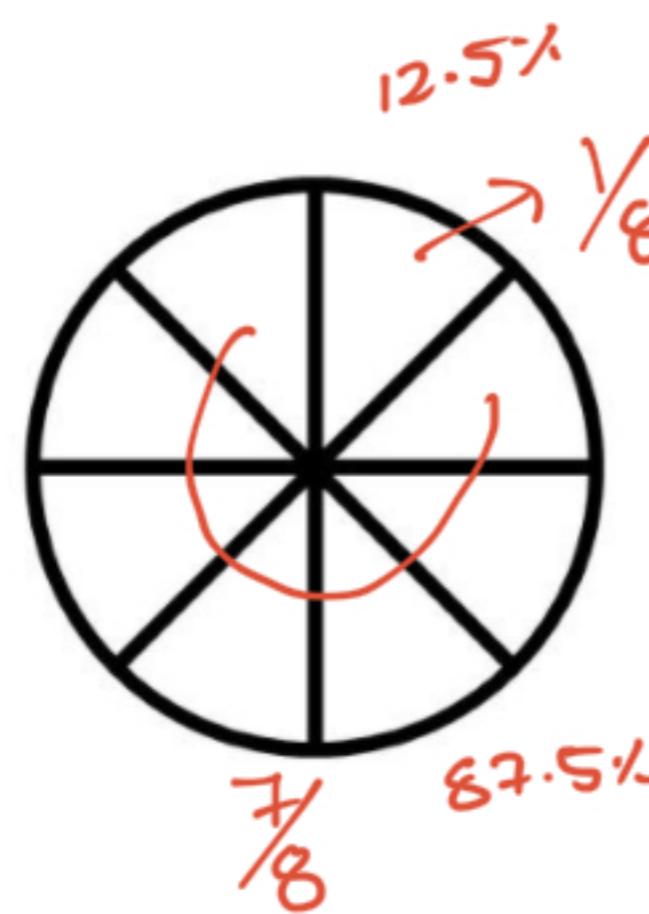


$$50\% \quad 50\% \\ \frac{1}{2}$$

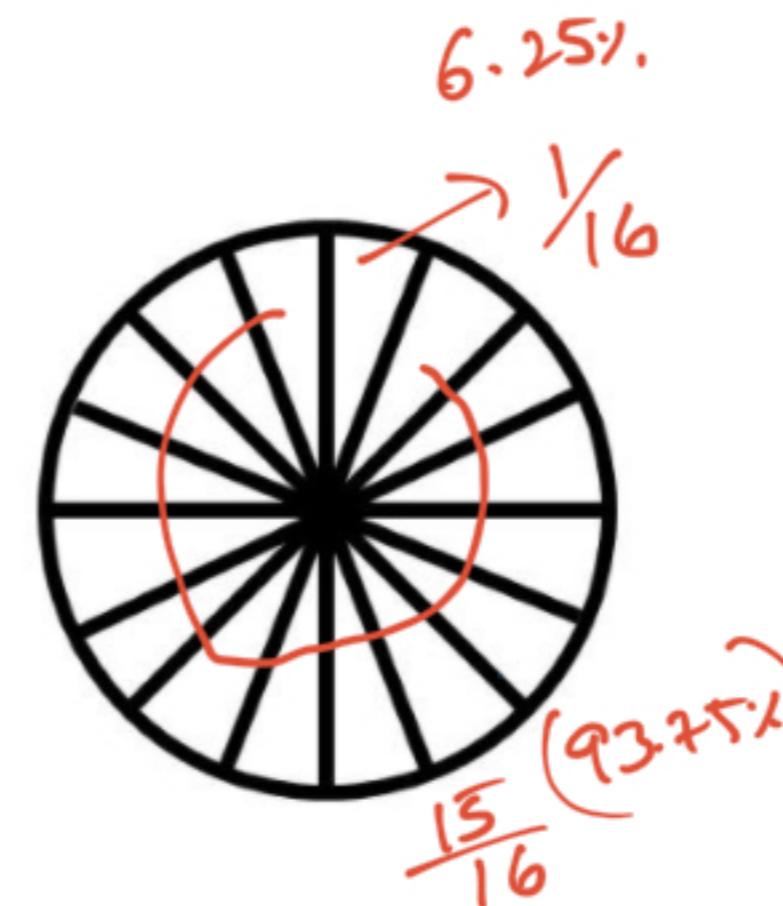


$$75\% \quad \frac{3}{4} \\ 25\% \quad \frac{1}{4}$$

$$\frac{3}{200}$$

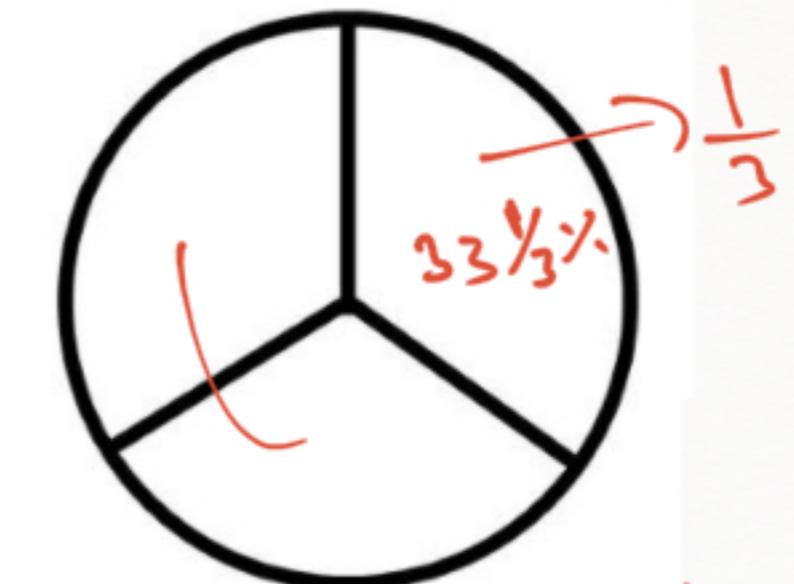


$$\frac{7}{8} \quad 87.5\%$$



$$\frac{15}{16} \quad (93.75\%)$$

$$6.25\% \rightarrow \frac{1}{16}$$



$$\frac{2}{3} = 66.66\% \\ = 66\frac{2}{3}\%$$

$$12.5\% \text{ increase} \rightarrow \frac{1}{8} \times 24 \Rightarrow 3$$

$$12.5\% \text{ decrease} \rightarrow \frac{7}{8} \times 24$$

$$12.5\% \text{ increase} \rightarrow \frac{9}{8} \times 24$$

$$\frac{1}{6} = 16.66\%$$

$$\frac{1}{15} = 6.66\%$$

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

$$\frac{1}{14} = 7.14\%$$

$$\frac{1}{13} = 7.69\%$$

$\frac{1}{1}$	100%	$\frac{1}{11}$	09.0909%
$\frac{1}{2}$	50%	$\frac{1}{12}$	8.33%
$\frac{1}{3}$	33.33%, $33\frac{1}{3}\%$	$\frac{1}{13}$	7.7%
$\frac{1}{4}$	25%	$\frac{1}{14}$	7.14%
$\frac{1}{5}$	20%	$\frac{1}{15}$	6.66%
$\frac{1}{6}$	16.66%	$\frac{1}{16}$	6.25%
$\frac{1}{7}$	14.28%	$\frac{1}{17}$	5.88%
$\frac{1}{8}$	12.5%	$\frac{1}{18}$	5.55%
$\frac{1}{9}$	11.111%	$\frac{1}{19}$	5.26%, $5\frac{3}{19}\%$
$\frac{1}{10}$	10%	$\frac{1}{20}$	5%

$$\frac{1}{a} = 11.111\ldots$$

$$\frac{1}{11} = 09.0909\ldots$$

12.5% Increase  
more profit  
 $\rightarrow \frac{1}{8}$

$$(100 + 12.5)\% \Rightarrow \left(1 + \frac{1}{8}\right) \Rightarrow \frac{9}{8}$$

12.5% Decrease  
less loss

$$(100 - 12.5)\% \Rightarrow \left(1 - \frac{1}{8}\right) = \frac{7}{8}$$

**25% of 36**

$$\frac{1}{4} \times 36$$

**$33\frac{1}{3}\%$  of 240**

$$\frac{1}{3} \times 240$$

**4% of 200**

$$\frac{4}{100} \times 200 \Rightarrow 8$$

$$1\% \Rightarrow \frac{200}{100} \Rightarrow 2$$

$$4\% \Rightarrow 2 \times 4 \Rightarrow 8$$

$$10\% \Rightarrow \frac{x}{10}$$

$$1\% \Rightarrow \frac{x}{100}$$

$$0.1\% \Rightarrow \frac{x}{1000}$$

**14.28% of 63**

$$\frac{1}{7} \times 63$$

Let A = 20

B = 30

$$A \text{ is what \% of } B \rightarrow 20 = \text{what \% of } 30 \Rightarrow \frac{20}{30}$$

$$\frac{2}{3} \times 100 = 66.\overline{66}\%$$

$$B \text{ is what \% of } A \rightarrow 30 = \text{what \% of } 20 \Rightarrow \frac{30}{20}$$

$$\frac{3}{2} \times 100 = 150\%$$

$$A \text{ is what \% LESS than } B \rightarrow \frac{\text{diff}}{B} \times 100 \Rightarrow \frac{10}{30} = 33.\overline{33}\%$$

$$B \text{ is what \% MORE than } A \rightarrow \frac{\text{diff}}{A} \times 100 \Rightarrow \frac{10}{20} = 50\%$$

Barath monthly salary is Rs.~~40000~~. if an increment of Rs.~~50000~~ is provided,  
what is the percentage increase in his salary?

- A. 12.5%
- B. 33.333%
- C. 3.666%

D. 25%

4 → 5

$$\frac{1}{4} \times 100 = 25\%$$

During winter season tender coconut price decrease to rs.30 from rs.40. what is  
the percentage decrease in the price?

- A. 33 1/3%
- B. 20%
- C. 25%

D. 16.666%

$$\frac{10}{40}$$

40 → 30

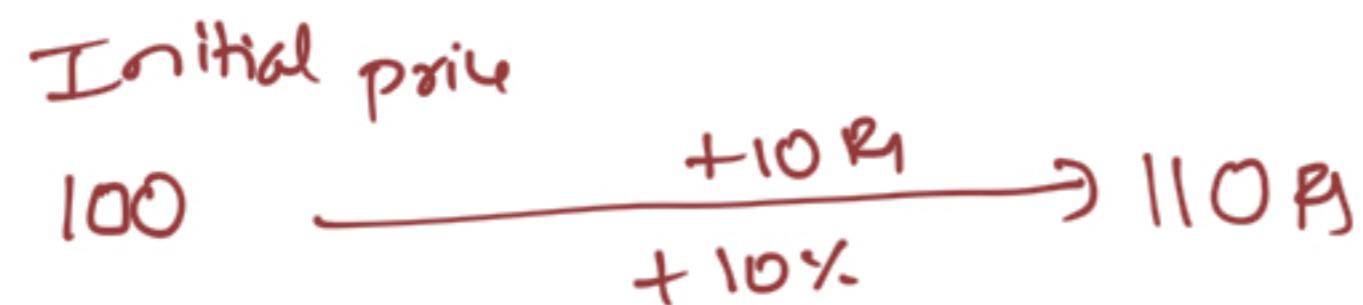
The cost of an article is increased by 10%. by what per cent should it now be reduced to restore its original price?

A. 10%

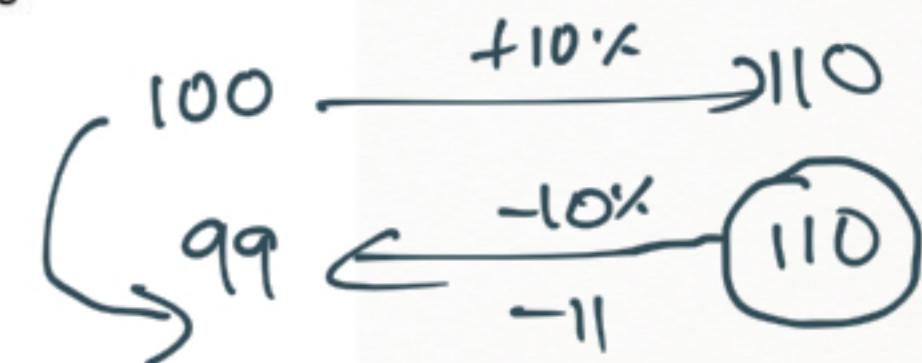
B. 9.09..%

C. 90.9090%

D. 12.5%



$$\frac{10}{110} \times 100 = \underline{\underline{9.0909\%}}$$



If Rahul's age is 25% greater than that of Ankita then how much percent  
Ankita's age is less than Rahul's age?

- A. 20%      B. 30%      C. 25%      D. 67%

$$\frac{\text{Ankita}}{100}$$

$$\frac{\text{Rahul}}{125}$$

$$\frac{\text{diff}}{125} \times 100 = \frac{25}{125} \times 100 \Rightarrow 20\%$$

Suresh's salary is 60% more than Ramesh's salary. Suresh got a 50% increment in his salary while Ramesh got 20% increment. By what percent is Suresh's salary more than Ramesh?

- A. 90%      B. 96%      C. 92%      D. 100%

<u>Ramesh</u>	<u>Suresh</u>
100	160
+20	+80
120	240

$$\frac{\text{diff}}{120} \times 100 = \frac{120}{120} \times 100 \\ = 100\%$$

In an office 40% of the staff is female. 40% of the female and 60% of the male voted for me. The percentage of votes I got was

- A. 24%      B. 42%      C. 50%       D. 52%

$$\begin{array}{c} 100\% \rightarrow 100 \\ F + M = 100 \\ 40 + 60 = 100 \\ \downarrow \quad \downarrow \\ 16 + 36 = 52 \end{array}$$

$$10\% \text{ female} \Rightarrow 4$$

$$40\% \Rightarrow 16$$

$$\begin{array}{l} 10\% \text{ male} \Rightarrow 6 \\ 60\% \Rightarrow 36 \end{array}$$

An aquarium consist of fishes. 65% of the fishes are male and 70 are female fishes. Find the total fishes in the aquarium.

~~x~~

A. 198

B. 199

C. 200

D. 202

$$\begin{array}{c} 100\% \quad \begin{array}{l} 65\% \text{ male} \\ 35\% \text{ female} \end{array} \\ 35\% \Rightarrow 70 \\ 100\% \Rightarrow x \end{array}$$

A fruit seller had some apples. He sells 40% apples and still has 420 apples.

Originally, he had:

A. 588

B. 600

C. 672

D. 700

$$\begin{array}{l} \text{left} \\ 60\% \Rightarrow 420 \\ 100\% \Rightarrow ? \end{array}$$

For a candidate to clear an examination, he/she must score 55% marks. If he/she gets 120 and fails by 78 marks, the total marks for the examination is

- A. 300
- ~~B. 360~~
- C. 400
- D. 320

$$\text{Passing mark} \Rightarrow 120 + 78 = 198$$

$$198 \Rightarrow 55\%$$

$$? \Rightarrow 100\%$$

A man losses 20% of his money. After spending 25% of the Remainder, he has Rs. 480 left. What is the amount of money he originally had?

$$100 \xrightarrow[-20\%]{20} 80 \xrightarrow[-25\%]{20} 60$$

$$\frac{1}{4} \times 80 = 20$$

100 → 60  
 $x \rightarrow 480$  left

$$\left( \underline{x} \times \frac{80}{100} \right) \times \frac{75}{100} = 480$$

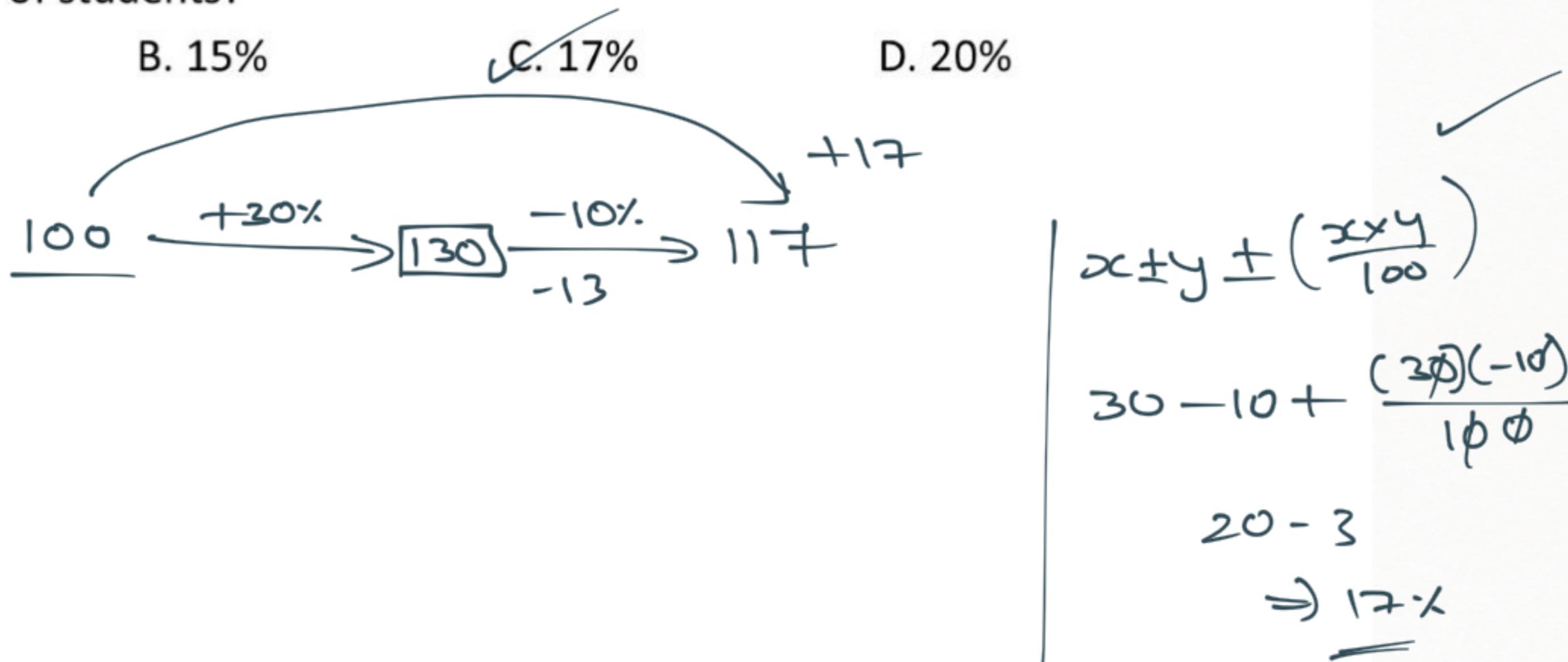
The number of students in a dance club was increased by 30% in the first year and decreased by 10% in the second year, what is the net percentage change in the number of students?

A. 14%

B. 15%

C. 17%

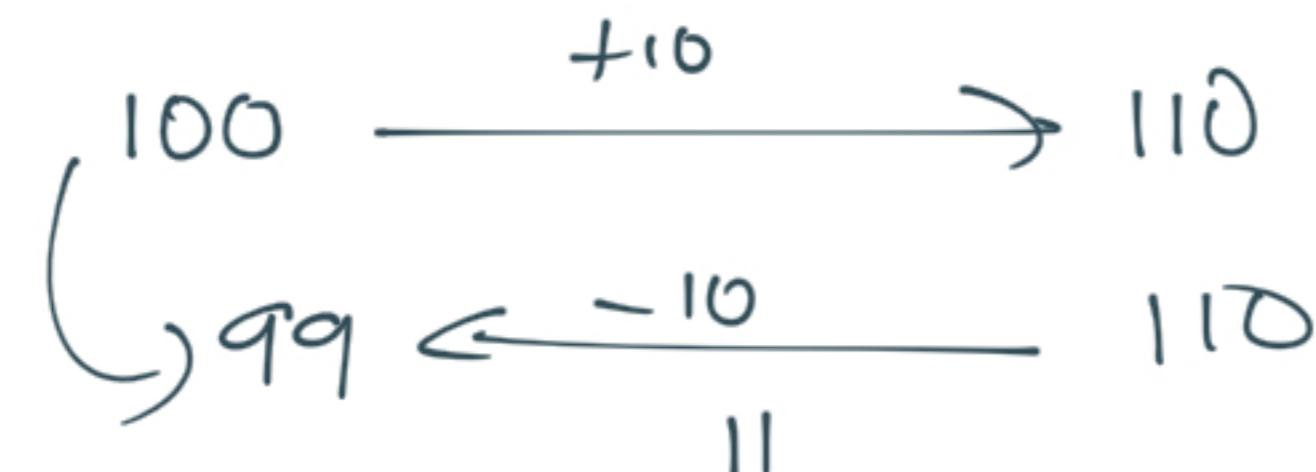
D. 20%



If the cost of an article is increased by 10% and afterwards decreased by 10%. Find the change in the price?

- ~~A. 1% decrease~~      C. No difference  
~~B. 1% increase~~      D. none

Short cut



$$\begin{aligned} & -\frac{x^2}{100} \\ \Rightarrow & \frac{10^2}{100} = \frac{100}{100} = 1 \end{aligned}$$

1% decrease

*CP*

A horse and a cow were brought for Rs. 12000 each. The horse was sold at a loss of 20% and the cow at the gain of 20%. The entire transaction resulted in:

- A. 20% profit      B. 4% profit      C. 4% loss      D. No loss no profit

$$\begin{array}{l} \text{cow} \quad CP = 12000 \\ 20\% \uparrow \quad 20\% \Rightarrow 2400 + \\ \boxed{SP = 14400} \end{array}$$

$$\begin{array}{l} \text{horse} \quad CP = 12000 \\ 20\% \downarrow \quad 20\% \Rightarrow 2400 - \\ \boxed{SP = 9600} \end{array}$$

$$\begin{array}{l} \text{total CP} \Rightarrow 24000 \\ \text{total SP} \Rightarrow 14400 + 9600 \\ \Rightarrow 24000 \end{array}$$

A horse and a cow were sold for Rs. 12000 each. The horse was sold at a loss of 20% and the cow at the gain of 20%. The entire transaction resulted in:

- A. 20% profit      B. 4% profit      C. 4% loss      D. No loss no profit

$$\begin{array}{l} \text{cow} \quad SP = 12000 \\ 20\% \uparrow \quad \frac{1}{5} \quad 12000 = SP \\ \frac{1}{5} \times q \cdot CP = SP \\ \frac{6}{5} q \cdot CP = 12000 \\ \boxed{CP = 10000} \end{array}$$

$$\begin{array}{l} \text{horse} \quad SP = 12000 \\ 20\% \downarrow \quad 1 - \frac{1}{5} \\ L\% \cdot q \cdot CP = SP \\ \frac{4}{5} \times CP = 12000 \\ \boxed{CP = 15000} \end{array}$$

$$-\frac{x^2}{100} = \frac{20}{100} = \frac{400}{100} \Rightarrow 4\%$$

$$\begin{array}{l} \text{total CP} \Rightarrow 25000 \\ \text{total SP} \Rightarrow 24000 \\ \text{Neeraja Anand V} \end{array}$$

The number of students in a dance club was increased by 20% in the first year, decreased by 10% in the second year and again increase by 11.11% in third year, what is the net percentage change in the number of students?

- A. 10%      B. 15%      C. 25%      D. 20%

$$20\% \Rightarrow \frac{1}{5}$$

$$10\% \Rightarrow \frac{1}{10}$$

$$11.11\% \Rightarrow \frac{1}{9}$$

$$(5, 10, 9) \Rightarrow 90$$

900
180
180

$$900 \xrightarrow[180]{+20\%} 1080 \xrightarrow[-108]{-10\%} 972 \xrightarrow[+108]{+11.11\%} 1080$$

$$\frac{16\phi}{900} \Rightarrow \frac{1}{5}$$

$$\left. \begin{array}{c} +10\% \\ -9.09\% \end{array} \right\} \quad \left. \begin{array}{c} -10\% \\ +11.11\% \end{array} \right\}$$

Salary of Ankit was Rs.20000. if the salary is decreased by 10% and then increased by 30%, what is the new salary of Ankit?

- A. 23000      B. 23100      C. 23230

D. 23400

$$20000 \times \frac{90}{100} \times \frac{130}{100} = \underline{\hspace{2cm}}$$

20,000  
17% { + 2000  
          + 1400  
          \underline{\hspace{1cm}}  
          \underline{\hspace{1cm}}  
          \underline{\hspace{1cm}}  
          \underline{\hspace{1cm}}

$$x \pm y \pm \left( \frac{x \times y}{100} \right)$$

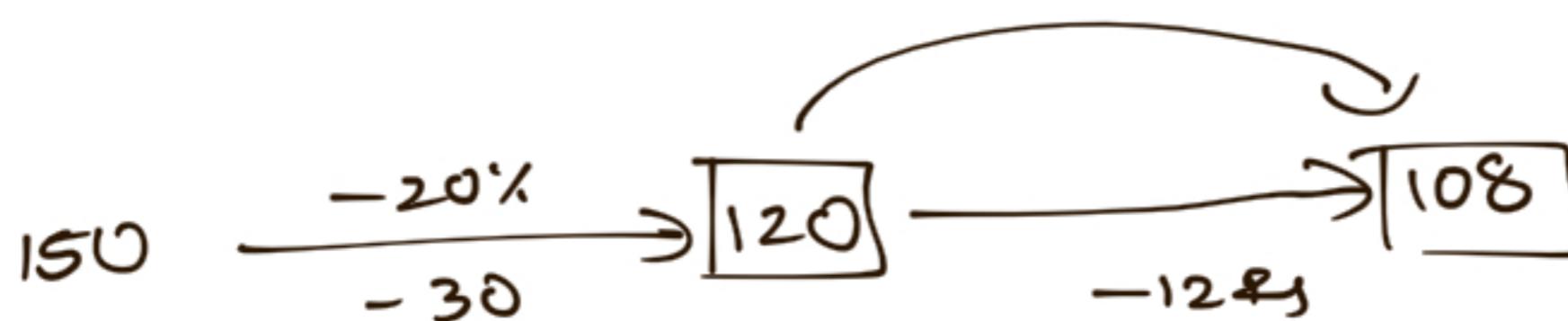
$$-10 + 30 + \frac{(-10)(+30)}{100}$$

$\Rightarrow$  17%

1x.  $\Rightarrow$  200  
7x.  $\Rightarrow$  1400

A ring is listed at rs. 150, with a discount of 20%, what additional discount must be offered to bring the net price to Rs. 108?

- A. 15%      B. 10%      C. 8%      D. 12%



$$\frac{12}{120} = \frac{1}{10} \times 100 = 10\%$$

A batsman scored 110 runs which included 3 boundaries and 8 sixes. What  
Percent of his total score did he make by running between the wickets?

~~A. 45%~~

~~B.  $45\frac{5}{11}\%$~~

~~C.  $54\frac{6}{11}\%$~~

~~D. 55%~~

$$\begin{aligned} & 110 \\ \rightarrow & 3(4) = 12 > 60 \\ \rightarrow & 8(6) = 48 > 60 \end{aligned}$$

$$\begin{array}{r} 110 \\ - 60 \\ \hline 50 \text{ runs} \end{array}$$

$$\begin{aligned} & \frac{50}{110} \times 100 \\ & \frac{500}{11} \end{aligned}$$

A Country cricket team has won 10 matches and lost 4. If the matches played represents 70% of the total matches in the tournament, then how many more matches should the team win so as to have a record of exactly 75% wins?

A. 5

B. 6

C. 4

D. 3

$$70\% \Rightarrow 14$$

total matches played in the tournament

$$100\% \Rightarrow 20$$

$$20 \leftarrow$$
$$75\% \Rightarrow 15 \text{ win} - 10 = \underline{\underline{5 \text{ more}}}$$
$$25\% \Rightarrow 5 \text{ lose}$$

The success rate of the Indian cricket team in Australia was 25% from 60 matches. If 54 matches were played since then, how many more matches would India have lost if its overall success rate is 50%?

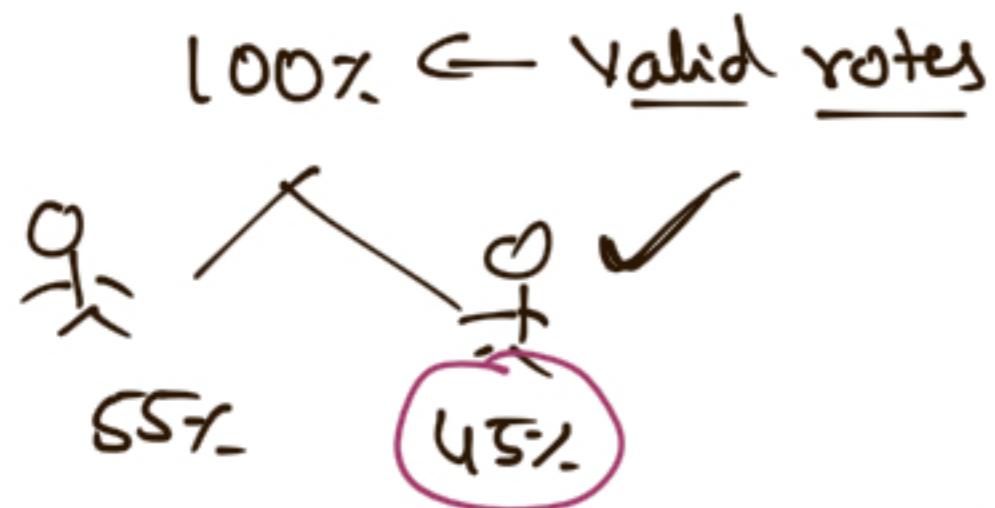
- A.12      B.14      C.18      D.22

60 → 25% ⇒ 15 won  
60 → 75% ⇒ 45 lost

$$\begin{array}{r} 114 \\ \swarrow \quad \searrow \\ 50x \quad 50y \\ \boxed{57} \\ - 45 \\ \hline 12 \end{array}$$

In an election between two candidates, one got 55% of the total valid votes, 20% of the votes were invalid. If the total number of votes was 7500, the number of valid votes that the other candidate got, was:

- A. 2700      B. 2900      C. 3000      D. 3100



20% of 7500 ← Invalid

$$\begin{array}{r} 20 \times 7500 \\ - 1500 \\ \hline 6000 \end{array} \leftarrow \text{valid}$$

45% of 6000

2700

$$\begin{array}{r} 50\% \Rightarrow 3000 \\ - 5\% \Rightarrow 300 \\ \hline \Rightarrow 45\% \Rightarrow 2700 \end{array}$$



3/5th of the voters in Varanasi promised to vote for A and the remaining promised to vote for B. On the day of election, 15% of the voters who had promised to vote for A did not cast their votes while 20% of the voters who had promised to vote for B did not turn up. What is the total number of votes polled if B got 128 votes?

- A. 400      B. 240      C. 204      D. 332

$$\begin{array}{ccc}
 & x & \\
 A & \frac{3}{5}x & \Rightarrow \frac{2}{5}x \\
 & & \downarrow \\
 & 400 &
 \end{array}$$

$$A \Rightarrow \frac{3}{5}x \times \frac{85}{100} \Rightarrow \frac{3}{5} \times 400 \times \frac{85}{100} = 204$$

$$\begin{aligned}
 A + B &\Rightarrow \underline{204 + 128} \\
 &\Rightarrow \underline{\underline{332}}
 \end{aligned}$$

$$B \Rightarrow \frac{2}{5}x \times \frac{80}{100} = 128$$

$$\boxed{x=400}$$

The price of a car is Rs. 5,00,000. It was insured for 90% of its price. The car got completely damaged and the insurance company paid only 80% of the insured amount. What is the price of the difference between the price of the car and the amount of insurance received?

- A. 1,28,000      B. 1,64,000      C. 1,60,000      D. 1,40,000

Initial price  $\Rightarrow$  500

10%  $\Rightarrow$  50

90%  $\Rightarrow$  450

insured  $\Rightarrow$  450

- 90

paid  $\Rightarrow$  360

10%  $\Rightarrow$  45

20%  $\Rightarrow$  90

$$500 - 360 = 140$$

Arun secures 32% of the total marks in an exam and gets 42 marks more than the pass mark. Bheem secures 20% of the total marks in the same exam and fails by 30 marks. What is the pass mark as a percentage of the total marks?

A. 25%

B. 12.5%

C. 33.75%

D. 35%

Arun

$$\text{Passing marks} \Rightarrow 32\% \text{ of } T - 42$$

Bheem

$$\text{Passing mark} \Rightarrow 20\% \text{ of } T + 30$$

$$\Rightarrow (25\% \text{ of } T) + 5\% \text{ of } T$$

$$12\% \text{ of } T = 72 \\ \Rightarrow 30$$

$$12\% \Rightarrow 72 \\ ? \Rightarrow 30$$

$$\frac{12 \times 30}{72} \Rightarrow 5\%$$

$$\frac{150}{600} \times 100 = 25\% \Rightarrow \frac{\text{Pass marks}}{\text{total marks}} \times 100$$

$$32\% \text{ of } T - 42 = 20\% \text{ of } T + 30$$

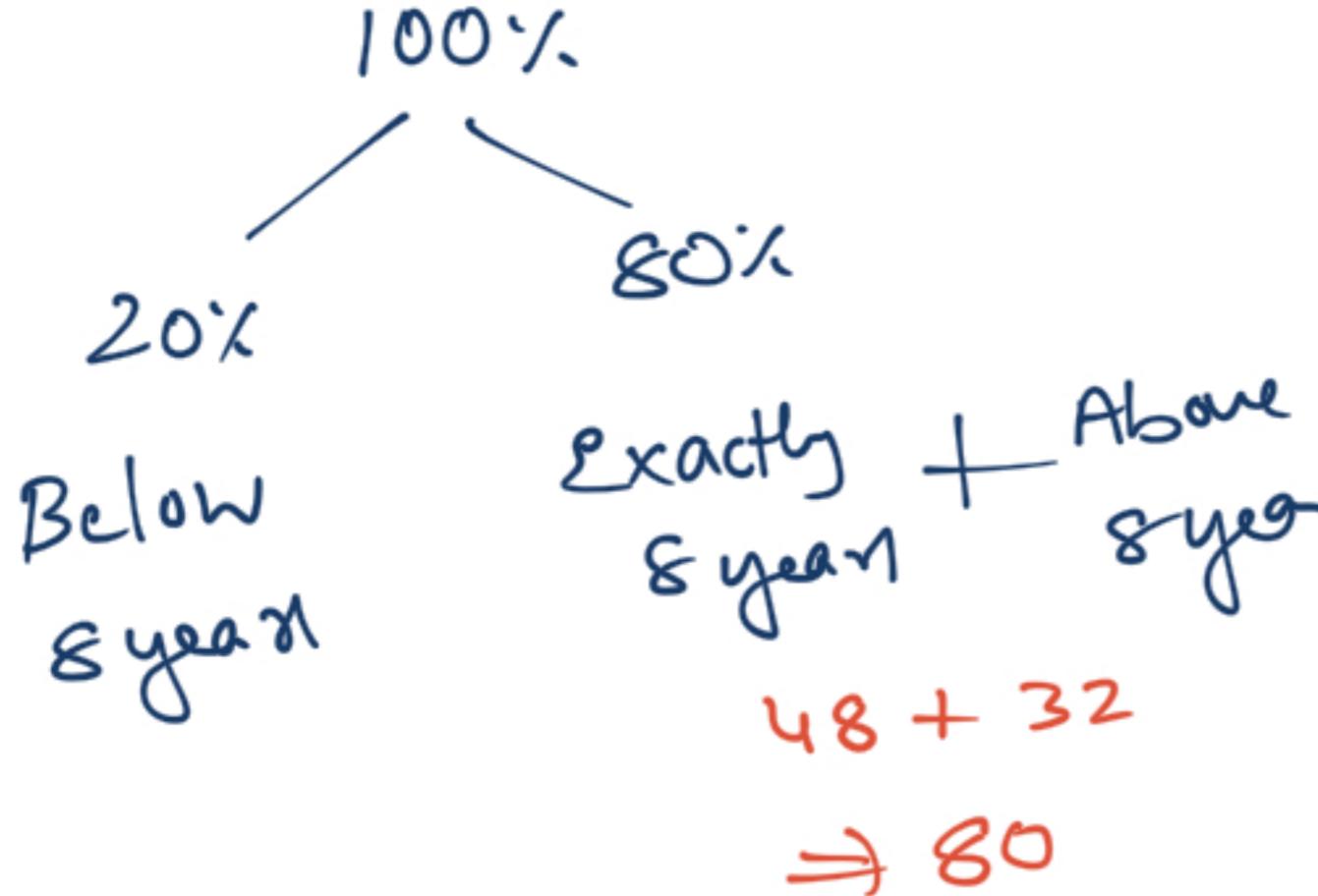
$$\Rightarrow 12\% \text{ of } T = 72 \Rightarrow \frac{12}{100} \times T = 72$$

$$\text{Pm} = \frac{20}{100} \times 600 + 30 \\ \Rightarrow 120 + 30$$

$$T = 600 \\ 10\% \Rightarrow 60 \\ 5\% \Rightarrow 30$$

In a certain school, 20% of students are below 8 years of age. The number of students above 8 years of age is  $\frac{2}{3}$  of the number of students of 8 years of age which is 48. what is the total number of students in the school?

- A. 80      ✓B. 100      C. 120      D. 150



Above 8 year =  $\frac{2}{3} \times$  exactly 8 year

$$= \frac{2}{3} \times 48$$

Above 8 year = 32

~~100%  
20% Below 8 year  
80%  
exactly 8 year + Above 8 year  
48 + 32  
⇒ 80~~

In march 2014, Rashmi paid EMI which was 30% oh her monthly salary. The remaining salary she spent on shopping of groceries and clothes in the respecting ratio of 4:3. she spent 15000 on shopping of clothes. If in the April 2014, her salary increasing by 12%, what was her salary in April?

- A. 48000    B. 50000    C. ~~56000~~    D. 66000    E. 55000

100%  
30% EMI  
70% Shopping

4 : 3

( )  
20,000 + 15000  
 $\Rightarrow 35000$

35000  $\Rightarrow$  70%  
50,000  $\Rightarrow$  100%  
 $\frac{+6000}{56000}$

10%  $\Rightarrow$  500  
1%  $\Rightarrow$  50  
1%  $\Rightarrow$  500  
6000