

Percentage

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OnlineStudy4u

Placement for All. All for Placement

This Video Completely covers "Problems on Percentage" which is more than sufficient for all kind of placement Exams eg: TCS/WIPRO/AMCAT/ELITMUS/CoCubes and all other placement Exams.

Percentage by: Pratik Shrivastava(10 years of industry experience and best Aptitude trainer)

Percentage

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

$$1/2 = 50\%$$

$$1/3 = 33.33\%$$

$$1/4 = 25\%$$

$$1/5 = 20\%$$

$$1/6 = 16.67\%$$

$$1/7 = 14.28\%$$

$$1/8 = 12.5\%$$

$$1/9 = 11.11\%$$

% is not equal to 100.

suppose total money=100

$$50\% = 100 \times 50 \div 100 = 500000 \text{ 😊}$$

-> X% of Y = Y% of X

Q1. 16.67% of 1212 ?

$$\frac{1}{6} \times 1212 = 202$$

Percentage

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

% is not equal to 100. X

suppose total money=100

$$50\% = 100 \times 50 \div 100 = 500000 \text{ 😊}$$

-> X% of Y = Y% of X

Q1. 16.67% of 1212 ?

$$\frac{1}{6} \times 1212 = 202 \text{ ✓}$$

$$16.67\% \text{ of } 1212$$

$$\frac{16.67 \times 1212}{100} \text{ ✓}$$

$$100\% \text{ of } 1 = 1\% \text{ of } 100 \text{ ✓}$$

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

$$1 = 1 \text{ ✓}$$

$$\begin{aligned} &\checkmark 1/2 = 50\% \checkmark \\ &\checkmark 1/3 = 33.33\% \checkmark \\ &\checkmark 1/4 = 25\% \checkmark \\ &\checkmark 1/5 = 20\% \checkmark \\ &\checkmark 1/6 = 16.67\% \checkmark \\ &\checkmark 1/7 = 14.28\% \checkmark \\ &\checkmark 1/8 = 12.5\% \checkmark \\ &\checkmark 1/9 = 11.11\% \checkmark \end{aligned}$$

Percentage

1. 33.33% of 6333?

$$\frac{1}{3} \times 6333 = 2111 \checkmark$$

2. 12.5% of 808080?

$$\frac{1}{8} \times 808080 = 101010$$

3. 11.11% of 990099?

$$\frac{1}{9} \times 990099$$

Percentage

Q4. 55% of 840?

$$\begin{aligned} 840 &= 100\% \\ 420 &= 50\% \\ 42 &= 5\% \\ \sqrt{462} \end{aligned}$$

$$\frac{55 \times 840}{100}$$

]

$$\begin{aligned} &= 100\% \checkmark \\ \sqrt{600 \text{ Rs}} \checkmark \\ &300 \text{ Rs} \end{aligned}$$

Q5. 35% of 680?

$$\underline{238}$$

$$340 \checkmark = 50\%$$

$$680 = 100\%$$

$$170 = 25\%$$

$$68 = 10\%$$

$$\sqrt{238}$$

$$\frac{100\%}{10} = \frac{680}{10}$$

$$10\% = 68$$

Percentage

Q6. 55.5% of 420?

$$420 = 100\%$$

$$210 = 50\%$$

$$21 = 5\%$$

$$2.1 = 0.5\%$$

$$\underline{233.1} \checkmark$$

$$\frac{50\%}{10} = 5\%$$

$$\begin{aligned} 5\% &= 21 \checkmark \\ \frac{5}{10} &= \frac{21}{10} = 2.1 \checkmark \end{aligned}$$

Q7. 56% of 1240?

$$1240 = 100\%$$

$$620 = 50\%$$

$$62 = 5\%$$

$$12.4 = 1\%$$

$$\underline{694.4}$$

$$\frac{12.40}{100} = \frac{100\%}{100}$$

Percentage

Q8. 64.28% of 343?

$$\underline{64.28\% \text{ of } 343}$$

$$(50\% + 14.28\%)$$

$$343 = 100\%$$

Percentage

Q8. 64.28% of 343?

$$\underline{220.5} \checkmark$$

$$\underline{64.28\% \text{ of } 343}$$

$$(50\% + 14.28\%)$$

$$343 = 100\%$$

$$171.5 = 50\%$$

$$\frac{49}{220.5} = 14.28\% \Rightarrow \left(\frac{1}{2} \times 343 \right)$$

$$= 49 \checkmark$$

Percentage

Q9. 30% of a number is 150. what is that number?

$$30\% \text{ of } x = 150$$

$$\frac{30}{100} \times x = 150$$

$$x = \frac{150 \times 100}{30} = 500 \checkmark$$

$$\Rightarrow 30\% = 150$$

$$1\% = 5$$

$$\boxed{100\% = 5 \times 100 = 500} \checkmark$$

$$\boxed{12.5\% = \frac{1}{8}} \checkmark$$

Q10. 12.5% of a number is 88. what is the number?

$$\frac{1}{8} \rightarrow 88$$

$$1 \rightarrow 88 \times 8 = \underline{704}$$

$$\boxed{704 \times 12.5\% = 88}$$

Percentage

DIJ

Q11. A=120 and B=180? ✓

✓ A is what percentage of B. $\frac{A}{B} \times 100 \Rightarrow \frac{120}{180} \times 100 = \frac{200}{3} = 66.67\%$

B is what percentage of A. $\Rightarrow 150\%$

A=120 ✓ B=180

$$\frac{B}{A} \times 100 = \frac{180}{120} \times 100 = 150\%$$

NM < RG

RG < NM

comparison numerator
denominator ✓

Percentage

Q12. A=120 and B=180? 60

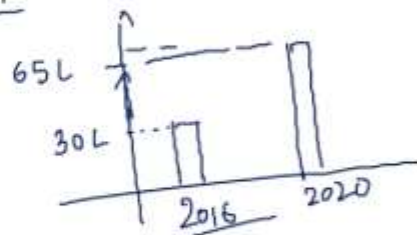
① A is how much percentage less than B. 33.33%

② B is how much percentage more than A. 50%

Q1. A=120, B=180

$$\Rightarrow \frac{60}{180} \times 100 = \frac{100}{3} = 33.33\%$$

Q2. $\frac{60}{120} \times 100 = 50\%$



2020 the production of company how much % more than 2016.

Important

Percentage

Ex. A=120 and B is 50% more than A. ✓

Ex. A=140 and B is 30% more than A. ✓

Ex. A=180 and B is 20% less than A. ✓

(less / discount / loss %)

(more / profit / gain %)

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

$$13 \times 14 = 13 \times (10 + 4)$$

$$130 + 52 = 182$$

① A=120, $B = 120 \times \frac{(100+50)}{100} = \frac{120 \times 150}{100} = 180$

② A=140, $B = 140 \times \frac{(100+30)}{100} = \frac{140 \times 130}{100} = 182$

③ A=180, $B = 180 \times \frac{(100-20)}{100} = \frac{180 \times 80}{100} = 144$ ✓

Percentage

Q13 In a country, 60% of the male citizen and 70% of the female citizen are eligible to vote. 70% of the male citizens eligible to vote voted, and 60% of female citizens eligible to vote voted. What fraction of the citizens voted during the election?

A. 0.49 B. 0.42 C. 0.48 D. 0.54

Eligible to vote

$$\begin{aligned} 60\% \text{ Male} &\Rightarrow 50 \times \frac{60}{100} = 30 \\ 70\% \text{ female} &\Rightarrow 50 \times \frac{70}{100} = 35 \end{aligned}$$

$$\begin{aligned} \text{Male} &= 50 \\ \text{female} &= 50 \\ \hline &100 \end{aligned}$$

$$\text{male } 30 \text{ eligible male} \times \frac{70}{100} = 21$$

$$\text{female } 35 \text{ eligible} \times \frac{60}{100} = 21$$

$$\text{Total vote} = 21 + 21 = 42$$

$$\frac{42}{100} = 0.42$$

Percentage

Q14 Twin brothers, Lava and Kusha, wrote the TCS NQT test. [While Lava scored 45% and got 4 marks below the cut-off, Kusha scored 60% and got 8 marks above cut-off and got selected for interview. What was the maximum marks in the test?

a) 50 b) 60 c) 70 d) 80

TCS NQT - 2020

TCS NQT

Lava

Kusha

$$\frac{45\% + 4}{\text{Cutoff}}$$

$$\frac{60\% - 8}{\text{Cutoff}}$$

$$45\% + 4 = 60\% - 8$$

$$15\% = 12$$

$$1\% = \frac{12}{15}$$

$$100\% = \frac{12}{15} \times 100 = 80$$

$$\left[\frac{x \times \frac{45}{100} + 4}{\text{Cutoff}} = \frac{x \times \frac{60}{100} - 8}{\text{Cutoff}} \right] \quad x = 80$$

Percentage

Q15 Shilpa spent 8% on school fees, 25% on rent and 17% on furniture. 25% of the remaining amount was spent on medical bills and the remaining rs. 6000 was set aside for investment. How much money did she spend on rent?

a. 3750 b. 6000 c. 4000 d. 3250

Shilpa had

100%

100%

$$[8\% + 25\% + 17\%]$$

$$\text{Shilpa will be } 100\% - 50\% = 50\% \text{ left with}$$

$$25\% - 25\% \times \frac{6000 \times 100}{275} \Rightarrow 50\% \times 75\% \Rightarrow 37.5\%$$

$$\Rightarrow \frac{12.5}{50\%} \times \frac{25}{100} = 37.5\%$$

$$= 4000$$

1%

$$\frac{6000}{37.5}$$

Percentage

Q16 If the numerator of a fraction is increased by 200% and the denominator of the fraction is increased by 150%, the resultant fraction is $\frac{9}{35}$. What is the original fraction?

- A) $\frac{3}{10}$ B) $\frac{2}{15}$ C) $\frac{3}{16}$ D) $\frac{3}{14}$

Numerator = x

deno = y

$\frac{x}{y}$

$$x \times \frac{(100+200)}{100} = x \times \frac{300}{100} \Rightarrow 3x$$

$$y \times \frac{(100+150)}{100} = \frac{5y}{2} \Rightarrow \frac{5y}{2}$$

$$\frac{3x}{(5y/2)} = \frac{9}{35}$$

$$\frac{2x}{5y} = \frac{3}{35}$$

$$\frac{x}{y} = \frac{3}{14} \checkmark$$

Percentage

Q17. Twenty five percent of Pranab's annual salary is equal to eighty percent of Surya's annual salary. Surya's monthly salary is forty percent of Dheeru's monthly salary. If Dheeru's annual salary is Rs.6 lacs, what is Pranab's monthly salary? (At some places annual income and at some place monthly income are given)

- A) Rs.7.68 lacs B) Rs.56,000 C) Rs.8.4 lacs D) Rs.64,000

Solⁿ

Surya monthly = 40% of $\left[\frac{600000}{12}\right] \checkmark$

$\frac{6 \text{ lac}}{12}$

$$\frac{40}{100} \times \frac{600000}{12} = 20,000 \checkmark$$

Pranab monthly salary

$\frac{16 \times 48000}{12}$

25% of Pranab = 80% of $20,000 \times 12$

$\frac{25}{100}$ of Pranab = $\frac{80}{100} \times 240,000$

Pranab = $\frac{16 \times 48000}{25} = 16 \times 48000$

Percentage

Q18 In a test, minimum passing percentage for girls and boys is 30% and 45% respectively. A boy scored 280 marks and failed by 80 marks. How many more marks did a girl require to pass in the test if she scored 108 marks?

- A) 132 B) 140 C) 160 D) 112

Boys.

Passed = $280 + 80 = 360$ marks

$\Rightarrow 45\% = 360 \checkmark$

1% = $\frac{360}{45}$

100% = $\frac{360}{45} \times 100$

Max Marks = 800

$800 \times \frac{30}{100} = 240 \checkmark$

G $\Rightarrow 30\% \checkmark$

B $\Rightarrow 45\% \checkmark$

$240 - 108 = 132 \checkmark$

Percentage

Q19. In an Examination, 34% of the students failed in mathematics and 42% failed in English. If 20% of the students failed in both the subjects, then find the percentage of students who passed in both the subjects.

1) 40% 2) 41% 3) 43% 4) 44%

Venn diagram ✓



$$34\% \text{ Maths} = \frac{\text{failed in (M+E)} + \text{failed only in Maths}}{100}$$

$$= 100\% - (14\% + 20\% + 22\%) \text{ failed in M+E} \checkmark$$

$$= 100\% - 56\% \checkmark$$

$$= 44\% \leftarrow \text{Pass}$$

Percentage

Q20. Gaurav spends 30% of his monthly income on food articles, 40% of the remaining on conveyance and clothes and saves 50% of the remaining. If his monthly salary is Rs. 18400. How much money does he save every month?

a. 2855 b. 3864 c. 4342 d. 5200

Total salary = 100rs

$$18400 \times 30\% \checkmark$$

$$100 \times \frac{70}{100} \times \frac{60}{100} = 42 \checkmark$$

$$\begin{array}{r} \sqrt{100rs} \quad \text{---} \quad 21rs \\ | \times 184 \\ \hline 18400 \end{array} \quad \begin{array}{r} 21rs \\ | \times 184 \\ \hline ? 3864 \checkmark \end{array}$$

$$42 \times \frac{50}{100} = 21rs \checkmark$$

$$21 \times 184 = 3864 \quad \left[\begin{array}{l} 184 \times 21 \\ = 3680 + 184 = 3864 \checkmark \end{array} \right]$$

Percentage

Q21. Two Students Appeared at an Examination. One of them secured 9 marks more than other and his marks was 56% of the sum of their marks. What are the marks obtained by them?

1st = x ✓ = 33
 2nd = $(x+9)$ ✓
 $33+9 = 42$ ✓

$$(x+9) = \frac{56}{100} \times (x+x+9)$$

25 (twist) ✓

$$25(x+9) = 14(2x+9)$$

$$\Rightarrow 25x + 225 = 28x + 126$$

$$\Rightarrow 3x = 99$$

$$x = \frac{99}{3} = 33 \checkmark$$

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Percentage

Q22. A students multiplied a number by $\frac{3}{5}$ instead of $\frac{5}{3}$. What is the percentage error in the calculation?

a. 60% b. 62% c. 64% d. 65%

✓ LCM of 3, 5 = 15
 ✓ Let us Assume = 15

Assume = 15
 deal. ✓

$$\times \frac{5}{3}$$

$$\times \frac{3}{5}$$

$$= \frac{5}{15} \times \frac{5}{3}$$

$$= \frac{3}{15} \times \frac{3}{5}$$

$$= \frac{25}{16}$$

$$\Rightarrow \frac{16}{25} \times 100 = 64\% \checkmark$$

Percentage

Q23. 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) 2500 B) 2700
 C) 2900 D) 3100

Total no of votes: 7500 ✓

one person 55% Total valid votes
 and the other 45% of total valid votes

Valid votes = $7500 \times \frac{80}{100}$ ✓

$\Rightarrow 3750 \times \frac{80}{100} \times \frac{45}{100}$ ✓

$= 45 \times 60 = 2700 \checkmark$

Percentage

Q24. If the length of a rectangle is increased by $37\frac{1}{2}\%$ and its breadth is decreased by 20% . Find the percentage change in Area. ✓ ✓ ✓

1) 5% 2) 10% 3) 15% 4) 17%

$$\left\{ \begin{array}{l} x \uparrow (+) \\ y \downarrow (-) \end{array} \right\}$$

$$37\frac{1}{2}\% = \frac{75}{2}\%$$

$$= x + y + \frac{xy}{100}$$

$$\begin{array}{l} x = 37.5 \\ y = -20 \end{array}$$

$$= 37.5 + (-20) + \frac{75}{2} \times \frac{(-20)}{100}$$

$$17.5 - \frac{15 \times 20}{2 \times 100}$$

$$= \frac{17.5 - 7.5}{100} = 10\%$$

Percentage

Q25. If 75% of a class answered the first question on a certain test correctly, 55 percent answered the second question on the test correctly, and 20 percent answered neither of the questions correctly, what percentage answered both correctly? ✓

- A) 20% B) 40%
C) 30% D) 50%

20% → answered neither

$$P(A \cup B) = 80\%$$

100% - 20% = 80% (at least one question) ✓

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

$$80\% = 75\% + 55\% - P(A \cap B)$$

$$P(A \cap B) = 130\% - 80\% = 50\% \checkmark$$