

Percentage

intro

1. 2024-08-08



PERCENTAGE
LESSON #1 Introduction

$* 9400$ $\text{③ } 30\% \text{ of } 2800 = ?$ $\frac{30}{100} \times 2800 = ?$ $= 28 \times 30$ $= [840]$	$\text{① } 50\% \text{ of } 2800 = ?$ $\frac{50}{100} \times 2800 = ?$ $= 50 \times 28$ $= [1400]$	<u>Normal Method</u> <u>Mind Calculation</u>
$\text{② } 10\% \text{ of } 2800 = ?$ $\frac{10}{100} \times 2800 = ?$ $= [280]$		$\text{① } 50\% = 1400$ $\text{② } 10\% = 280 \times 3 = [840]$ $\text{③ } 1\% = 28$ $\text{④ } 5\% = 140 \times 5 = [35\%]$ $\text{⑤ } 20\% = 560$ $\text{⑥ } 30\% + 5\% = [35\%]$ $\frac{840}{140}$ $\underline{\underline{980}}$

(a)

formula basics just memory it



PERCENTAGE
LESSON #1 Introduction

$\text{Eq. } * [X\% \text{ of } Y = Y\% \text{ of } X]$ $\text{Ex. } 36\% \text{ of } 50 = ?$ $\frac{36}{100} \times 50 = ?$ $= [18]$	$20\% \text{ of } 96 = ?$ $10\% = 9.6$
--	---

(b) i.

Fraction	Decimal	Percentage
1	1	100%
$\frac{3}{4}$	0.75	75%
$\frac{2}{3}$	0. $\dot{6}$	66. $\dot{6}$ %
$\frac{1}{2}$	0.5	50%
$\frac{1}{3}$	0. $\dot{3}$	33. $\dot{3}$ %
$\frac{1}{4}$	0.25	25%
$\frac{1}{5}$	0.2	20%
$\frac{1}{8}$	0.125	12.5%
$\frac{1}{10}$	0.1	10%
$\frac{1}{100}$	0.01	1%

basic question

PERCENTAGE
LESSON 2 BASIC QUESTIONS

$\frac{50}{100}$ of P = $\frac{25}{100}$ of Q
 $\frac{P}{2} = \frac{Q}{4}$ then
 $P = x\% \text{ of } Q$ find x.

$2P = 1Q$
 $P = \frac{Q}{2}$

$\frac{Q}{2} = \frac{x}{100} \times Q$
 $x = 50$

1. (a)

If $50\% \text{ of } P = 25\% \text{ of } Q$,
then $P=x\% \text{ of } Q$. find x.

(a) 0.5
(b) 20
(c) 50
(d) 30
(e) 10

PERCENTAGE
LESSON 2 BASIC QUESTIONS

② $20\% \text{ of } (P+Q) = 50\% \text{ of } (P-Q)$

$2(P+Q) = 5(P-Q)$
 $2P + 2Q = 5P - 5Q$
 $2Q + 5Q = 5P - 2P$
 $7Q = 3P$
 $\frac{P}{Q} = \frac{7}{3} \Rightarrow P:Q = 7:3$

(b) i.

If $20\% \text{ of } (P+Q) = 50\% \text{ of } (P-Q)$, then
find P : Q

(a) 7:8
(b) 7:3
(c) 7:5
(d) 5:7
(e) 1:5

Feel Free
to
Learn

LESSON 2 BASIC QUESTIONS

(3)

$$\begin{aligned} \frac{90}{3} \text{ of } A &= \frac{30}{1} \text{ of } B \\ B &= 2x\% \text{ of } A \quad \text{find } x \\ 3A &= B \\ A &= \frac{B}{3} \\ B &= \frac{2x}{100} \times \frac{B}{3} \\ 1 &= \frac{x}{150} \\ x &= 150 \end{aligned}$$

ii. A.

If 90% of A = 30% of B
and B = 2x% of A, then
the value of x is

- (a) 450
- (b) 400
- (c) 300
- (d) 150
- (e) 105

Feel Free

LESSON 2 BASIC QUESTIONS

(4)

$$\begin{aligned} 40\% \text{ of } (A+B) &= 60\% \text{ of } (A-B) \\ \text{then } \frac{2A-3B}{A+B} &\approx \\ \frac{2}{4}(A+B) &= \frac{3}{6}(A-B) \\ \frac{2(5B)-3B}{5B+B} &= 2A+2B=3A-3B \\ 10B-3B &= 2B+3B=3A-2A \\ \frac{7B}{6B} &= \frac{5B}{6B} = \boxed{\frac{5}{7}} \end{aligned}$$

iii.

If 40% of (A + B) = 60%
of (A - B) then
(2A-3B)/(A+B) is

- (a) 7/6
- (b) 6/7
- (c) 5/6
- (d) 6/5
- (e) 1/5

Feel Free

Feel Free

LESSON 2 BASIC QUESTIONS

(5)

$$\begin{aligned} 20\% \text{ of } a &= 80\% \text{ of } b \\ \text{find } \frac{b+a}{b-a} \\ \frac{2}{4}a &= \frac{8}{4}b \\ a &= 4b \\ \frac{b+4b}{b-4b} &= \frac{5b}{3b} = \boxed{\frac{5}{3}} \end{aligned}$$

iv.

If 20% of a is equal to
80% of b, then
(b+a)/(b-a) is equal to

- (a) 3/5
- (b) 5/3
- (c) 5/7
- (d) 7/5
- (e) 1/5

Feel Free
to
Learn

Feel Free
to
Learn

PERCENTAGE
LESSON 2 BASIC QUESTIONS

20% of $(A+B) = 50\%$ of B
then $\frac{2A+B}{2A+2B} \&$

$$2(A+B) = 5B$$

$$2A+2B = 5B$$

$$2A = 5B - 2B$$

$$2A = 3B$$

$$\boxed{A = \frac{3B}{2}}$$

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

Feel Free

v.

If 20% of $(A + B) = 50\%$ of B , then the value $(2A-B)/(2A+B)$ is

- (a) 1/2
- (b) 1/3
- (c) 1/4
- (d) 1
- (e) 1/5

Feel Free

Feel Free

PERCENTAGE
LESSON 2 BASIC QUESTIONS

④ If x is 20% less than y
 $\frac{y-x}{y}$ and $\frac{x}{x-y}$

$x = 80$ $y = 100$

$$\frac{100-80}{100}, \frac{80}{80-100}$$

$$\frac{20}{100} = \frac{2}{10} = \frac{1}{5}$$

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

Feel Free

vi.

If X is 20% less than Y , then find the value of $(Y-X)/Y$ and $X/(X-Y)$

- (a) 1/5, -4
- (b) 5, -1/4
- (c) 2/5, -5/2
- (d) 3/5, -5/3
- (e) 2/5, -3/4

Feel Free

PERCENTAGE
LESSON 2 BASIC QUESTIONS

⑤ If $\frac{8}{2}\%$ of $x = \frac{4}{1}\%$ of y , then
 $2x = y$
 $\boxed{x = \frac{y}{2}}$

20% of x is
 $\frac{20}{100} \times \frac{y}{2} = \frac{y}{10}$

Feel Free

vii.

If 8% of $x = 4\%$ of y , then
20% of x is

- (a) 10% of y
- (b) 16% of y
- (c) 40% of y
- (d) 80% of y
- (e) 30% of y

Feel Free

to

Feel Free

PERCENTAGE
LESSON 2 BASIC QUESTIONS

Q) $\frac{60}{2}\%$ of A = $\frac{30}{1}\%$ of B, B = 40% of C,
 $C = x\%$ of A
 Then find
 $\frac{A}{B} = \frac{B}{C}$
 $\frac{A}{B} = \frac{40}{5} \times C$
 $A = \frac{C}{5}$ $x = \frac{x}{100} \times \frac{C}{5}$
 $x = 500$

viii.

If 60% of A = 30% of B,
 B=40% of C, C =x% of A,
 then the value of x
 is

(a)200
 (b)500
 (c)800
 (d)300
 (e)100

percentage new basics

PERCENTAGE
LESSON 3 What Percentage

x y
 (100) (100)
 $\frac{y-x}{x} \times 100$

$\frac{100}{11} \text{ less}$

$\frac{y-x}{x} \times 100$
 $\frac{100-110}{110} \times 100$

If x is 10% more than y,
 then by what percent is
 y less than x?

(a) $9(1/11)\%$
 (b) $7(1/11)\%$
 (c) $8(1/11)\%$
 (d) $10(1/11)\%$
 (e) $12(1/11)\%$

Teel Tree

1. (a)

PERCENTAGE

LESSON 3 What percentage

$$\begin{array}{l} \frac{x}{110} \quad \frac{y}{100} \\ 10\% \\ \hline \end{array}$$

$$\left(\frac{y-x}{x} \times 100 \right) - \left(\frac{-10}{110} \times 100 \right) - \frac{100}{11}$$

(b)

If x is 10% more than y ,
then by what percent is
 y less than x ?

- (a) $9(1/11)\%$
- (b) $7(1/11)\%$
- (c) $8(1/11)\%$
- (d) $10(1/11)\%$
- (e) $12(1/11)\%$

Feel Free
to
Learn

Feel Free
to
Learn

PERCENTAGE

LESSON 3 What percentage

$$\begin{array}{l} A \quad B \\ 110 \quad 100 \end{array}$$

$$\begin{aligned} & \text{than/of} \\ & = \frac{B-A}{A} \times 100 \\ & = \frac{100-110}{110} \times 100 \Rightarrow \frac{-10}{110} \times 100 \\ & = -\frac{100}{11} \\ & = 9\frac{1}{11} \end{aligned}$$

(c)

If A's height is 10%
more than B's height,
by how much percent
less is B's height that
of A?

- (a) 10%
- (b) $10(1/9)\%$
- (c) $10(1/11)\%$
- (d) $9(1/11)\%$
- (e) 15%

Feel Free
to
Learn

Feel Free
to
Learn

PERCENTAGE

LESSON 3 What percentage

A (100)	B (80)
------------	-----------

$$\begin{aligned}
 &= \frac{A - B}{B} \times 100 \\
 &= \frac{100 - 80}{80} \times 100 \\
 &= \frac{20}{80} \times 100 = 25\%
 \end{aligned}$$

(d) 

- B got 20% marks less than A. what percent marks did A got more than B?**
- (a) 20%
 - (b) 25%
 - (c) 12%
 - (d) 80%
 - (e) 90%

Feel Free to Learn

PERCENTAGE

LESSON 3 What percentage

x (125)	y (100)
------------	------------

$$\begin{aligned}
 &= \frac{Y - X}{X} \times 100 \\
 &= \frac{100 - 125}{125} \times 100 = -20\% \text{ less} \\
 &= -25\% \times 100
 \end{aligned}$$

(e) 

- If x earns 25% more than y. What percent less does y earn than x?**

- (a) 16%
- (b) 10%
- (c) 20%
- (d) 25%
- (e) 11%

Feel Free to Learn

PERCENTAGE
LESSON 3 What Percentage

$$\begin{array}{ccc} \overline{12\frac{1}{2}\%} & \overline{25\%} & \overline{} \\ (\underline{225}) & (\underline{125}) & (\underline{100}) \end{array}$$

$$\begin{array}{c} \frac{25}{225} \times 100 \\ = \frac{100+25}{2} \\ = \frac{225}{2} \end{array}$$

(f) i.

Two numbers are respectively $12\frac{1}{2}\%$ and 25% more than a third number. The first number is what percentage of second number is

- (a) 50
- (b) 60
- (c) 75
- (d) 90
- (e) 25

Feel Free
to
Learn

Feel Free
to
Learn

PERCENTAGE
LESSON 3 What Percentage

$$\begin{array}{ccc} \overline{12\frac{1}{2}\%} & \overline{25\%} & \overline{} \\ (\underline{225}) & (\underline{125}) & (\underline{100}) \end{array}$$

$$\begin{array}{c} \frac{225}{125} \times 100 \\ = \frac{9}{5} \times 100 \\ = 180 \end{array}$$

ii.

Two numbers are respectively $12\frac{1}{2}\%$ and 25% more than a third number. The first number is what percentage of second number is

- (a) 50
- (b) 60
- (c) 75
- (d) 90
- (e) 25

Feel Free
to
Learn

Feel Free
to
Learn

PERCENTAGE

LESSON 3 What Percentage

$\frac{30\%}{(70)} \quad \frac{37\%}{(63) (100)}$

$$\begin{aligned} & \frac{S - F}{F} \times 100 \\ & \frac{63 - 70}{70} \times 100 \\ & = \frac{-7}{70} \times 100 \\ & = -10\% \text{ less} \end{aligned}$$

(g)

Feel Free
to
Learn

Feel Free
to
Learn

Two numbers are less than a third number by 30% and 37% respectively. The percent by which the second number is less than the first is

- (a) 10
- (b) 7
- (c) 4
- (d) 3
- (e) 2

on salary

Base value, remaining, balance, at below change rps from starting of %

! [[Pasted image 20240808203656.png]]

Copy

PERCENTAGE

LESSON 4 Based on Salary

$$\begin{aligned} \frac{100\%}{\text{Base Value}} - \underbrace{40\% - 20\% - 10\% - 10\%}_{\text{Spends.}} &= 80\% \\ 20\% &= 1500 \\ 100\% &= x \\ x \times 20\% &= 1500 \times 10\% \\ x &= 7500 \end{aligned}$$

1. (a)

Feel Free
to
Learn

Radha spends 40% of her salary on food, 20% on house rent, 10% on entertainment and 10% on conveyance. If her savings at the end of a month are Rs.1500, then her salary per month (in Rs.) is

PERCENTAGE

LESSON 4 Based on Salary

$\frac{100\%}{30\%}$
 $\frac{30\%}{3\%}$
 $\frac{3\%}{33\%}$

$33\% = 2310$
 $100\% = x$
 $33 \times x = 2310 \times 100$
 $x = 7000$

2. (a) 

Kishan spends 30% of his salary on food and donates 3% in a Charitable Trust. He spends Rs.2310 on these two items, then total salary for that month is

Feel Free

2. (a)

PERCENTAGE

LESSON 4 Based on Salary

$\frac{100\%}{35\%}$
 $\frac{35\%}{5\%}$
 $\frac{5\%}{40\%}$
 $\frac{40\%}{44}$

$40\% = 17600$
 $100\% = x$
 $x = 44000$

3. (a) 

Mr. X spends 35% of his salary on food 5% of his salary on children education. In January 2011, he spent Rs.17600 on these two items. His salary for that month is

Feel Free to Learn

3. (a)

LESSON 4 Based on Salary

$\frac{55475}{28525}$ $\frac{25\%}{Savings}$

$75\% = \frac{84000}{84000}$

$75\% = 84000$
 $100\% = x$
 $75 \times x = 84000 \times 100$
 $x = 112000$

4. (a) 

Keshav spent Rs.55475 on his birthday party, Rs.28525 on buying home appliances and the remaining 25% of the total amount he had as cash with him. What was the total amount?

4. (a)

PERCENTAGE
LESSON 4 Based on Salary

1. $\frac{7}{100}x = 2710$
 $100\% = x$
 $x = 31000 \rightarrow \text{Suj. Salary}$

2. 100%
 $\rightarrow 7\% + 18\% + 6\%$
 $31\% \quad 100\% = 31000$
 $31\% = x$
 $x = 310 \times 31$
 $x = 9610 \times 12$

Feel Free

5. (a)

Ms. Sujata invests 7% i.e., Rs.2710, of her monthly salary in mutual fund. Later she invests 18% of her monthly salary in recurring deposits. Also, she invests 6% of her salary on NSC's. What is the total annual amount invested by Ms. Sujata?

6. remaining is important in the question , so it may be hard so base is rps 100 , **OUT OF** ,remaining

PERCENTAGE
LESSON 4 Based on Salary

1. $\frac{20}{100} \times 100 = 20(\text{Hs})$
 80

2. $65\% \text{ of } 80$
 $\frac{65}{100} \times 80 = 52$

3. $28\% = 9800$
 $100\% = x$
 $x = \frac{9800 \times 100}{28}$
 $x = 35000$

Feel Free

(a)

Mr.X spends 20% of his monthly income on household expenditure. Out of the remaining 25% he spends on children's education, 15% on transport, 15% on medicine and 10% on entertainment. He is left with Rs.9800 after incurring all these expenditures. What is his monthly income?

PERCENTAGE

LESSON 4 Based on Salary

A man spends 40% of his monthly salary on food and one-third of the remaining on transport. If he saves Rs.4500 per month, which is equal to half the balance after spending on food and transport, his monthly salary is

Feel Free to Learn

7. (a)

PERCENTAGE

LESSON 4 Based on Salary

A person gave 20% of his income to his elder son, 30% of the remaining to the younger son and 10% of the balance, he donated to a trust. He is left with Rs.10080. His income was:

Feel Free to Learn

8. (a)

PERCENTAGE
LESSON 4 Based on Sabey

$$\frac{3}{100} \times x = \frac{(40,000 - x) \times 15}{100}$$

$$3x = 40,000 - x$$

$$4x = 40,000$$

$$x = 10,000$$


9. (a)

10. ==new format ==

PERCENTAGE
LESSON 4 Based on Sabey

$$125\% \text{ of } 12\% \text{ of } x = 2400$$

$$\frac{25}{100} \times \frac{12}{100} \times x = 2400$$

$$\frac{30}{20} \times 4 \times x = 2400$$

$$x = 2 \times 100 \times 20 \times 4$$

$$x = 16,000$$


(a)

The monthly salaries of A and B together amount to Rs. 40000. A spends 85% of his salary and B, 95% of his salary. If now their savings are the same, then the salary (in Rs.) of A is

Vipul decided to donate 12% of his salary to an orphanage. On the day of donation, he changed his mind and donated Rs.2400 which was 125% of what he had decided earlier. How much is Vipul's salary?

Feel Free
to

voters

important points

1. won
 2. by majority of x differences votes , compared to others , meaning difference of win and losers
- ! [[Pasted image 20240808211402.png]]
 Copy

PERCENTAGE

LESSON #5 Based On Voters

$$\begin{array}{ccc} W & L & T.V \\ 57\% & 43\% & 100\% \end{array}$$

$$Maj = W\% \sim L\% = 57\% \sim 43\%$$

$$\begin{aligned} 14\% &= 42,000 & 14x &= 42,000 \times 100 \\ 100\% &= x & x &= \frac{42,000 \times 100}{14} \\ & & x &= 3,00,000 \end{aligned}$$

Two person contested an election of parliament. The winning candidate secured 57% of the total votes polled and won by a majority of 42,000. The total number of votes polled is.

Feel Free
to
Learn

LESSON #5 Based On Voters

$$\begin{array}{ccc} T.V.P. & L & W \\ 100\% & 40\% \sim & 60\% \end{array}$$

$$\begin{aligned} 20\% &= 298 & 100\% &= x \\ 100\% &= x & x &= \frac{298 \times 100}{20} \\ x &= 1490 & & \end{aligned}$$

In a election, a candidate secured 40% of the votes but is defeated by the only other candidate by a majority of 298 votes. Find the total number of votes recorded.

Feel Free
to
Learn

4. (a)

5. find the majority

PERCENTAGE

LESSON #5 Based On Voters

<u>Total Voter</u>	<u>W</u>	<u>L</u>
100%	72%	28%

$$\begin{array}{l} 100\% = 8200 \\ \downarrow \\ x = 3608 \end{array}$$

$$\begin{array}{l} 44\% = x \\ \downarrow \\ 100x = 8200 \times 44 \\ x = 8200 \times 44 \end{array}$$

(a)

In a election between two candidates, one get 72% of the total votes. If the total votes are 8200 by how many votes did the winner win the election?

Feel Free
to
Learn

6. by the majority given , to find out the winning candidatet got by winning candidate so we use 60%

PERCENTAGE

LESSON #5 Based On Voters

<u>T.V.E</u>	<u>W</u>	<u>L</u>
100%	60% ~ 40%	

$$\begin{array}{l} 20\% = 14,000 \\ \downarrow \\ 60\% = x \\ \downarrow \\ 20x = 14,000 \times 60 \\ x = 14,000 \end{array}$$

(a)

In an election between two candidates, the candidate getting 60% of the votes polled is elected by a majority of 14,000 votes. The number of votes polled by the winning candidate is

Feel Free
to
Learn

PERCENTAGE

LESSON #5 Based On Voters

T.V.E	<u>1</u>	<u>2</u>	<u>3</u>
100%	40%	36%	24%

$$100\% = 36,000 \quad 24\% = ?$$

$$84\% = x$$

$$100x = 36,000 \times 24$$

$$x = 360 \times 24$$

$$x = 8640$$

In an election, three candidates contested. The first candidate got 40% votes and the second got 36% votes. If the total number of votes polled were 36000, find the number of votes got by the third candidate.

Feel Free to Learn

7. (a)

invalid votes

some are invalid, base is not change

PERCENTAGE

LESSON #5 Based On Voters

Winner	<u>70% of 90%</u>	<u>T.V.E</u>
$\left(\frac{70}{100} \times 90\right)\%$	<u>100%</u>	<u>10%</u>
<u>63%</u>	<u>90%</u>	<u>Valid</u>

$$63\% - 27\% = 36\%$$

Majority

$$36\% = 1800$$

$$100\% = x \quad 50$$

$$x = 1800 \times \frac{100}{36}$$

$$x = 5000$$

In a college election between two candidates, 10% of the votes cast are invalid. The winner gets 70% of the valid votes and defeats the loser by 1800 votes. How many votes were totally cast?

Feel Free to Learn

1. (a)

LESSON #5 Based On Voters

T.V.E $\Rightarrow 100\% - 8\%$
 $= 92\%$

48% ~ 44%
Winner Loser

$48\% = \frac{1100}{100} = x$ $x = \frac{1100 \times 100}{48}$
 $x = 27,500$

Feel Free
to
Learn

2. (a)

8% of the voters in an election did not cast their votes. In this election, there were only two candidates. The winner by obtaining 48% of the total votes defeated his contestant by 1100 votes. The total number of voters in the election was

PERCENTAGE

LESSON #5 Based On Voters

T.V.E $100\% - 2\% = 98\%$
Valid Votes

$539 \times (100+4) = 53900$ $\frac{53900}{8156} = 56056$

$55\% \text{ of } 98\% = \left(\frac{55 \times 98}{100}\right)\%$ $100x = 1,04,000$
 $53.9\% \rightarrow \underline{\text{Winner}}$ $539x = x = 56056$
 $x = 539 \times 104$

Feel Free
to
Learn

3.

In an assembly election, a candidate got 55% of the total valid votes. 2% of the total votes were declared invalid. If the total number of voters is 104000, then the number of valid votes polled in favour of the candidate.

based on marks

base 100 marks\

PERCENTAGE

LESSON #6 Based on Marks

1000(B)	800(G)
/	
60% Passed	50% Passed
40% Failed	50% Failed

$$\Rightarrow 400(B) + 400(G) = 800(\text{Failed})$$

$$= \frac{400}{1800} \times 100 = 44.44\%$$

1. (a)

In an examination, there were 1000 boys and 800 girls. 60% of the boys and 50% of the girls passed. Find the percent of the candidates failed?

Feel Free
to
Learn

PERCENTAGE

LESSON #6 Based on Marks

<u>Pass</u>	<u>Cand</u>
<u>40%</u>	<u>220</u>
	<u>20</u>
	<u>240</u> → Passed

$$40\% = 240$$

$$100\% = x$$

$$\frac{40}{100} \times x = \frac{240}{240} \times 100$$

$$x = 600$$

2. (a)

In an examination, a candidate must secure 40% marks to pass. A candidate, who gets 220 marks, fails by 20 marks. What are the maximum marks for the examination?

Feel Free
to
Learn

LESSON #6 Based on Marks

36%
Pass mark
 $\frac{113}{85} = \frac{198}{x}$
 $x = 550$

$36\% = 198$
 $100\% = x$
 $36x = 198 \times 100$
 $x = \frac{198 \times 100}{36}$

3. (a)

For an examination, it is required to get 36% of maximum marks to pass. A student got 113 marks and failed by 85 marks. The maximum marks for the examination are:

Feel Free
to
Learn

PERCENTAGE
LESSON #6 Based on Marks

Pass
 $33\% \approx 25\% = 40$
 $8\% = 40$
 $100\% = x$
 $8x = 40 \times 100$
 $x = 500$

4. (a)

A student has to obtain 33% of total marks to pass. He got 25% of total marks failed by 40 marks. The number of total marks is:

Feel Free
to
Learn

5. (a)

LESSON #6 Based on Marks

$$80\%(E) + 85\%(M) - 75\%(EM) = 90\% \text{ (Boys)}$$
$$100\% - 90\% = 10\% \text{ Fail}$$
$$10\% = 45$$
$$100\% = x$$
$$x = \frac{45 \times 100}{10}$$
$$x = 450$$

In an examination, 80% of the boys passed in English and 85% passed in mathematics, while 75% passed in both. If 45 boys failed in both. The number of boys who sat for the examination was

Feel Free
to
Learn

6. (a)

PERCENTAGE

LESSON #6 Based on Marks

$$65\% + 48\% - 30\% = 83\% \text{ Passed}$$
$$100\% - 83\% = 17\% \text{ Failed}$$

In an examination, 65% of the students passed in mathematics, 48% passed in physics and 30% passed in both. How much percent of students failed in both the subjects?

Feel Free
to
Learn

PERCENTAGE

LESSON #6 Based on Marks

$$100\% = 70\% + 80\% - x + 10\%$$

$$x = 160\% - 100\%$$

$$x = 60\%$$

$$\frac{60\%}{100\%} = \frac{24}{x}$$

$$100\% = x$$

$$x = 240$$

7. (a)

In an examination 70% of the candidates passed in English. 80% passed in Mathematics. 10% failed in both the subjects. If 144 candidates passed in both, the total number of candidates were:

Feel Free
to
Learn

8. important to sum

PERCENTAGE

LESSON #6 Based on Marks

$$20\% \sim 30\% = 10\%$$

$$\leftarrow 5 \qquad \rightarrow = 25$$

$$\frac{50}{5} \qquad 10\% = 25 \qquad \text{Pass}\% = \frac{\text{Pass marks}}{\text{Total marks}} \times 100$$

$$\frac{55}{5} \qquad 100\% = x \qquad = \frac{55}{25} \times 100$$

$$\underline{\text{Pass}} \qquad x = 25 \times \frac{10}{10} \qquad = 220$$

$$\underline{\text{Total}} \qquad x = 250 \qquad = 22\%$$

(a)

In an examination, a student who gets 20% of the maximum marks fails by 5 marks. Another student who scores 30% of the maximum marks gets 20 marks more than the pass marks. The necessary percentage required for passing is:

Feel Free
to
Learn

PERCENTAGE

LESSON #6 Based on Marks

$$\frac{S_1}{100} + \frac{S_2}{100} + \frac{S_3}{100} = 390$$

$$60\% + 80\% + x = 70\%$$

↓

$$60 + 80 + x = 210$$

$$x = 210 - 80 - 60$$

$$\boxed{x = 70}$$

9. (a)

In an examination, there are three subjects of 100 marks each. A student scores 60% in the first subject and 80% in the second subject. He scored 70% in aggregate. His percentage of marks in the third subject is

Feel Free
to
Learn