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Sahi Prep Hai Toh Life Set Hai

PERCENTAGE

Part-4

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Agenda

Venn Diagram

2 variables → 3 variables → 50-55 Min

Practice 10 Questions → (30-35)

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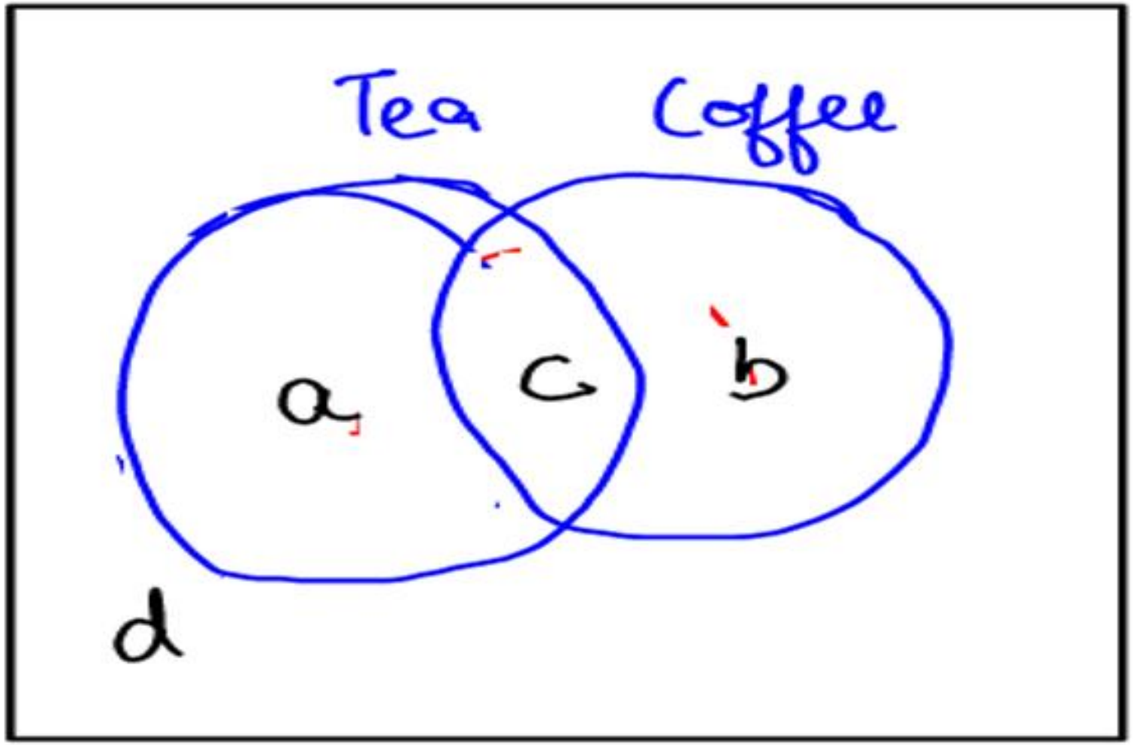
CONCEPT OF VENN DIAGRAM

a → Only Tea

b → Only Coffee

c → Both Tea & Coffee

d → Neither Tea nor Coffee



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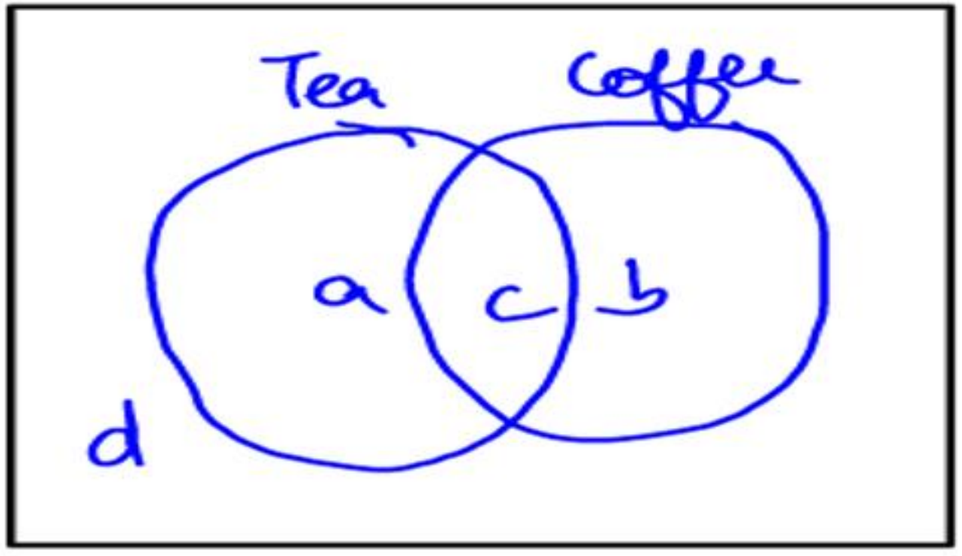

(i) Tea → a+c

(ii) Coffee → b+c

(iii) only Coffee → b

(iv) like Tea but not coffee

→ a

(v) Both Tea & Coffee

→ c

(vi) atleast one

(min) → a+b+c

(vii) atmost one

max → a+b+d

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100 families

Covid 19

0	1	2	3	4
83	11	3	1	2

at least one member → 11+3+1+2

→ 17

at most 2 member

MOX

→ 83+11+3

⇒ 97

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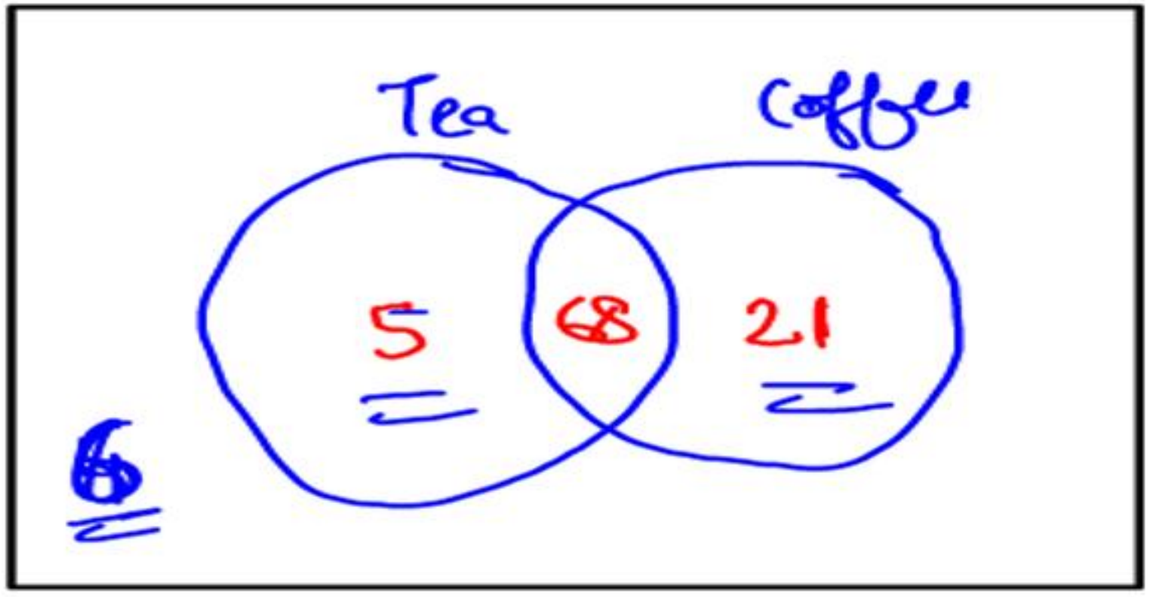
eg 100 students

73 Tea ✓

89 coffee ✓

68 Tea ✓ coffee ✓



atleast one → 5+68+21 = 94

atmost one → 6+5+21 = 32

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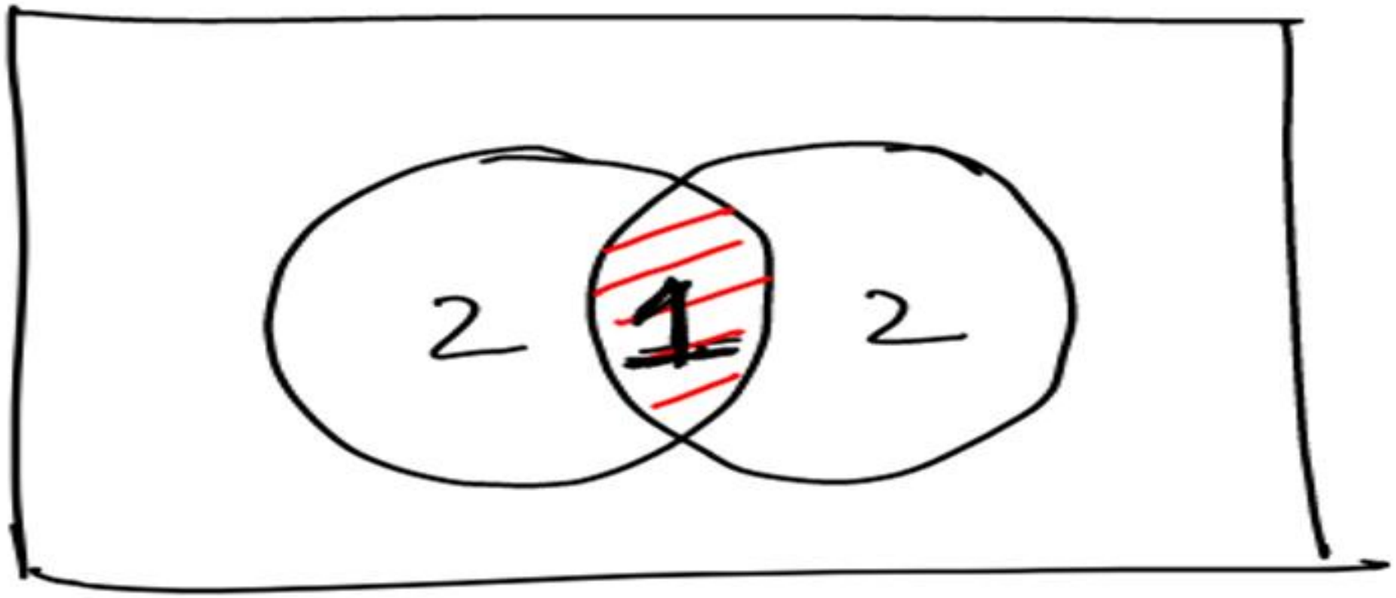

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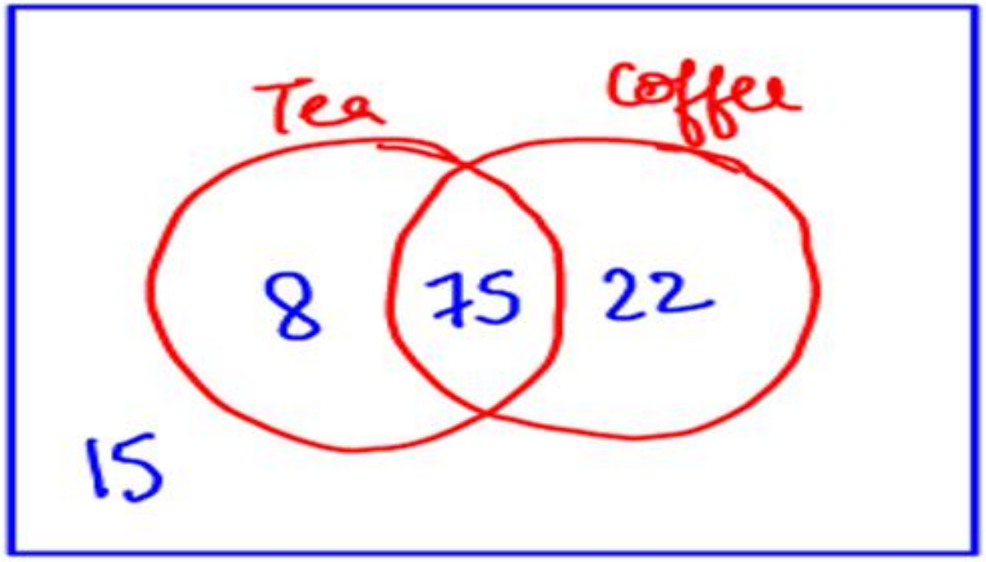

In a class there are 120 students, 83 drink tea, 97 drink coffee and 75 drink both tea and coffee. Find how many students :

(i) drink atleast one of tea or coffee. → 105

(ii) drink atmost one of tea or coffee. → 45

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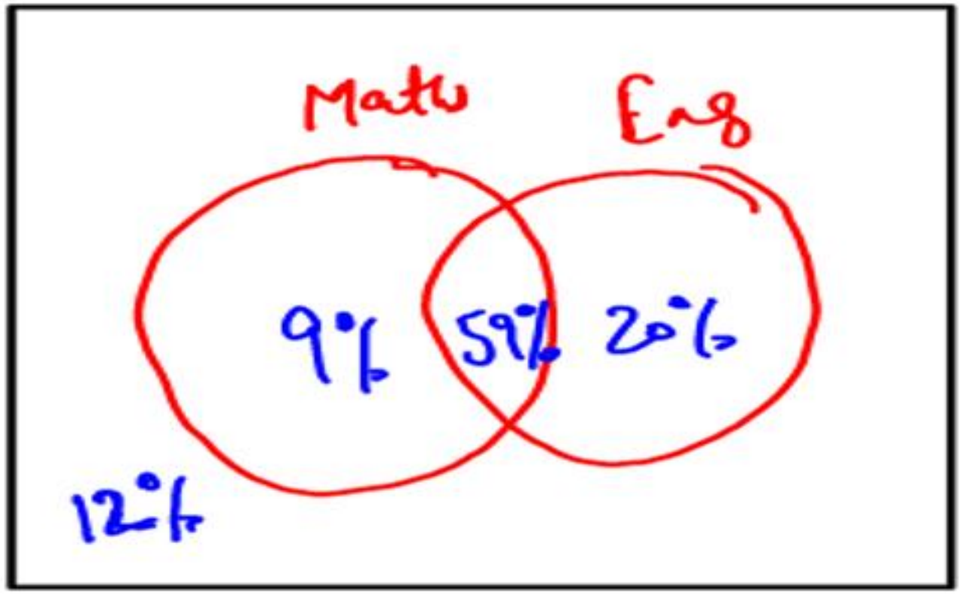

12% M ∩ E

68% → M

79% → E

In a class 68% students passed in Maths, 79% passed in English and 12% failed in both the subjects. Find what percentage of students:

(i) passed only in Maths. → 9%

(ii) passed in Maths but failed in English.

→ 9%

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(iii) failed only in English.

→ 9%.

(iv) passed in atleast one subject.

9+59+20 → 88%.

(v) passed in atmost one subject.

12+9+20 → 41%.

(vi) passed in exactly one subject. → 29%.

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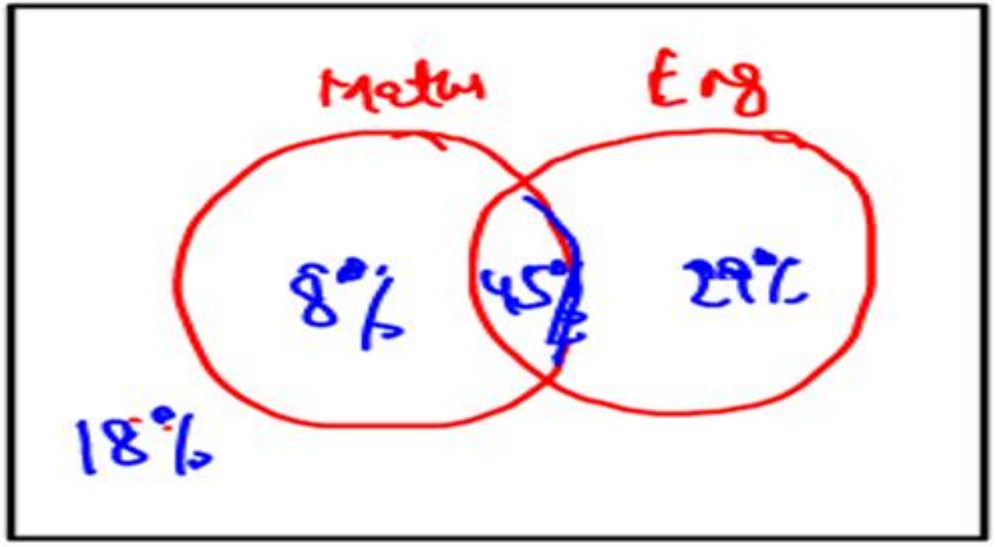
53% Maths ✓

74% Eng ✓

18% Maths ∩ Eng



(i) atleast one subject → 82%

(ii) atmost one subject → 55%

(iii) what % of students those passed in maths also passed in english

$$\frac{45}{53} \times 100$$

$$= 83.9\% \checkmark$$

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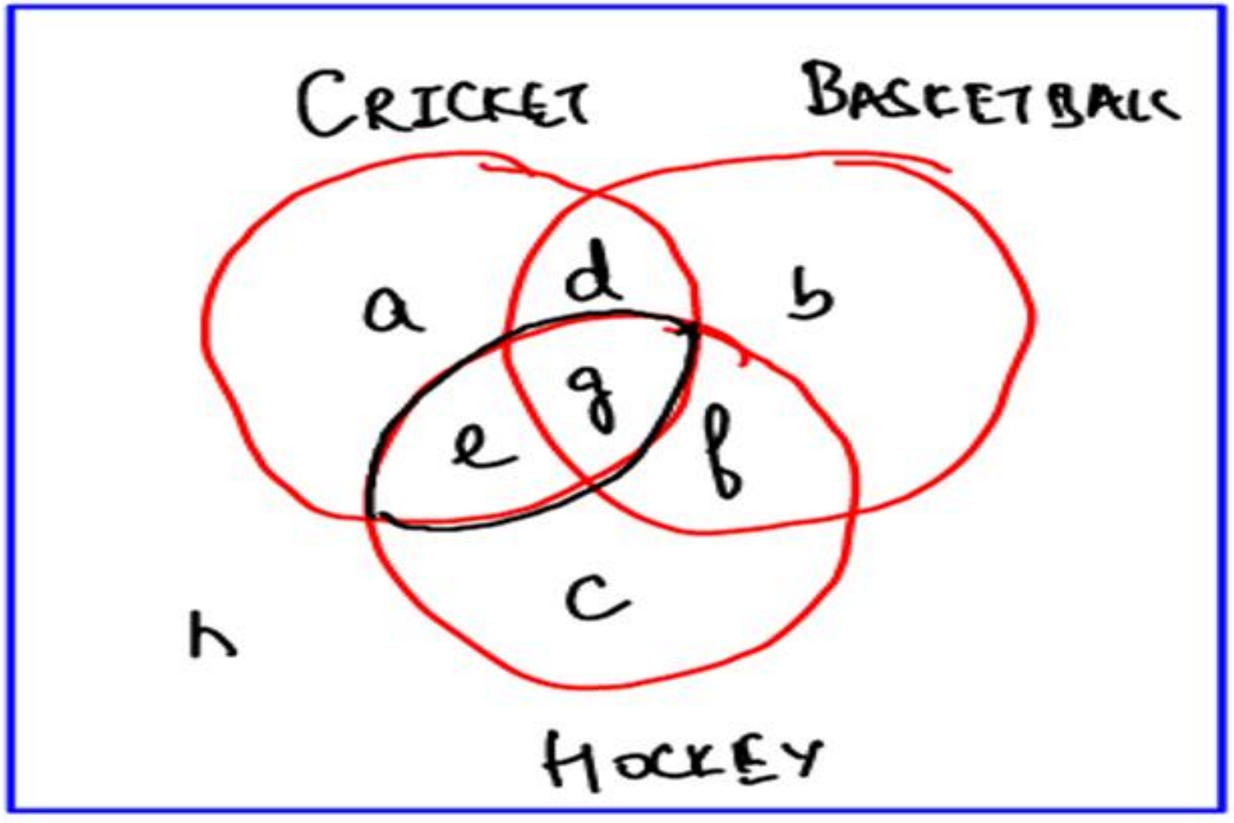
VENN DIAGRAM IN 3-VARIABLES



(i) Cricket

→ a+d+g+e

(ii) only Hockey

→ c

(iii) exactly 1 game

→ a+b+c

Note : SSC ask question on this in very rare case.

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(iv) exactly 2 games → $d \cup e \cup f$

(v) all 3 games → g

(vi) atleast 1 game → $a \cup b \cup c \cup d \cup e \cup f \cup g$

(vii) atleast 2 games → $d \cup e \cup f \cup g$

V.Imp (viii) (Cricket & Hockey) both → $e \cup g$

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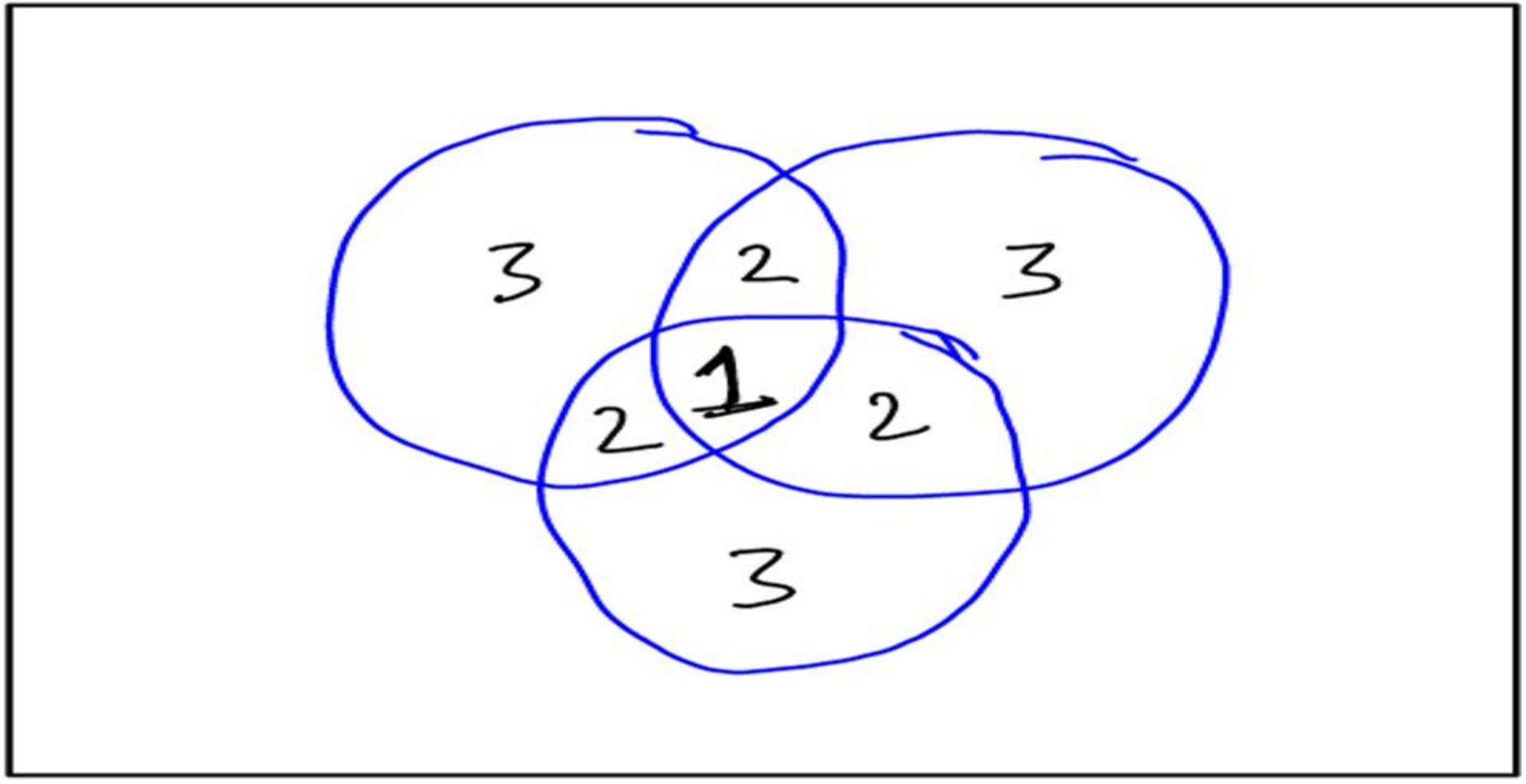

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120 students

60 → TOI

55 → H

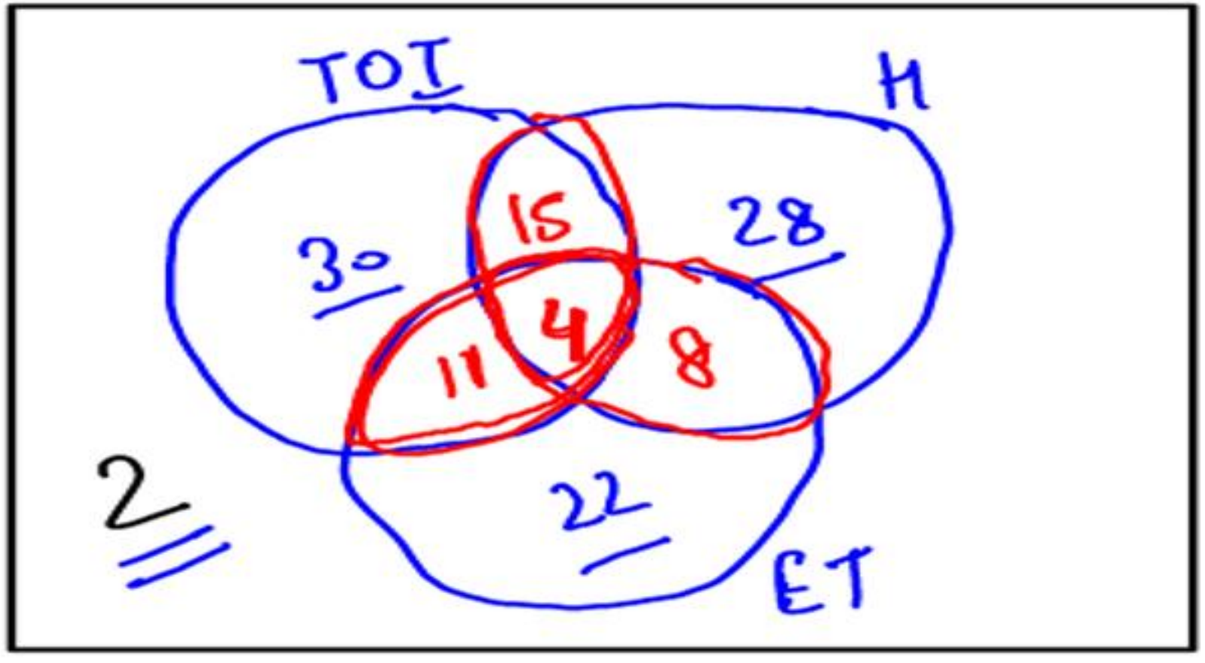
49 → ET

19 → TOI & H

12 → H & ET

15 → ET & TOI

4 → TOI, H & ET



In a class there are 120 students, 60 read Times of India, 55 read Hindu and 45 read Economic Times. If 19 students read Times of India and Hindu, 12 read Hindu and Economic Times and 15 students read Economic Times and Times of India. If there are 4 students who read all the three newspapers, then find :

(i) those who read only Times of India

→ 30

(ii) those who read only Hindu

→ 28

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(iii) those who read exactly one newspaper

$30 + 28 + 22 = 80$

(iv) those who read atleast two newspapers

$15 + 11 + 8 + 4 \rightarrow 38$

(v) those who read atleast one newspaper

118

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(vi) those who read atmost one newspaper

$2 + 30 + 28 + 22 = 82$

(vii) those who read Hindu but not Economic Times

$28 + 15 = 43$

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QUESTION BASED ON EXAMINATION

We have done this

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In a certain exam A got 38 % marks and failed by 18 marks whereas B got 49 % marks and scored 15 marks more than the passing marks, then find :

(i) Maximum marks of the Exam
(ii) Passing Marks
(iii) Passing %
(iv) A's marks

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Q. In a test a student got 30% marks and failed by 25 marks. In the same test another student got 40% marks and secured 25% marks more than the essential minimum pass marks. The pass marks for the test were

A. 400

B. 480

C. 500

D. 580

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Ans. (a)

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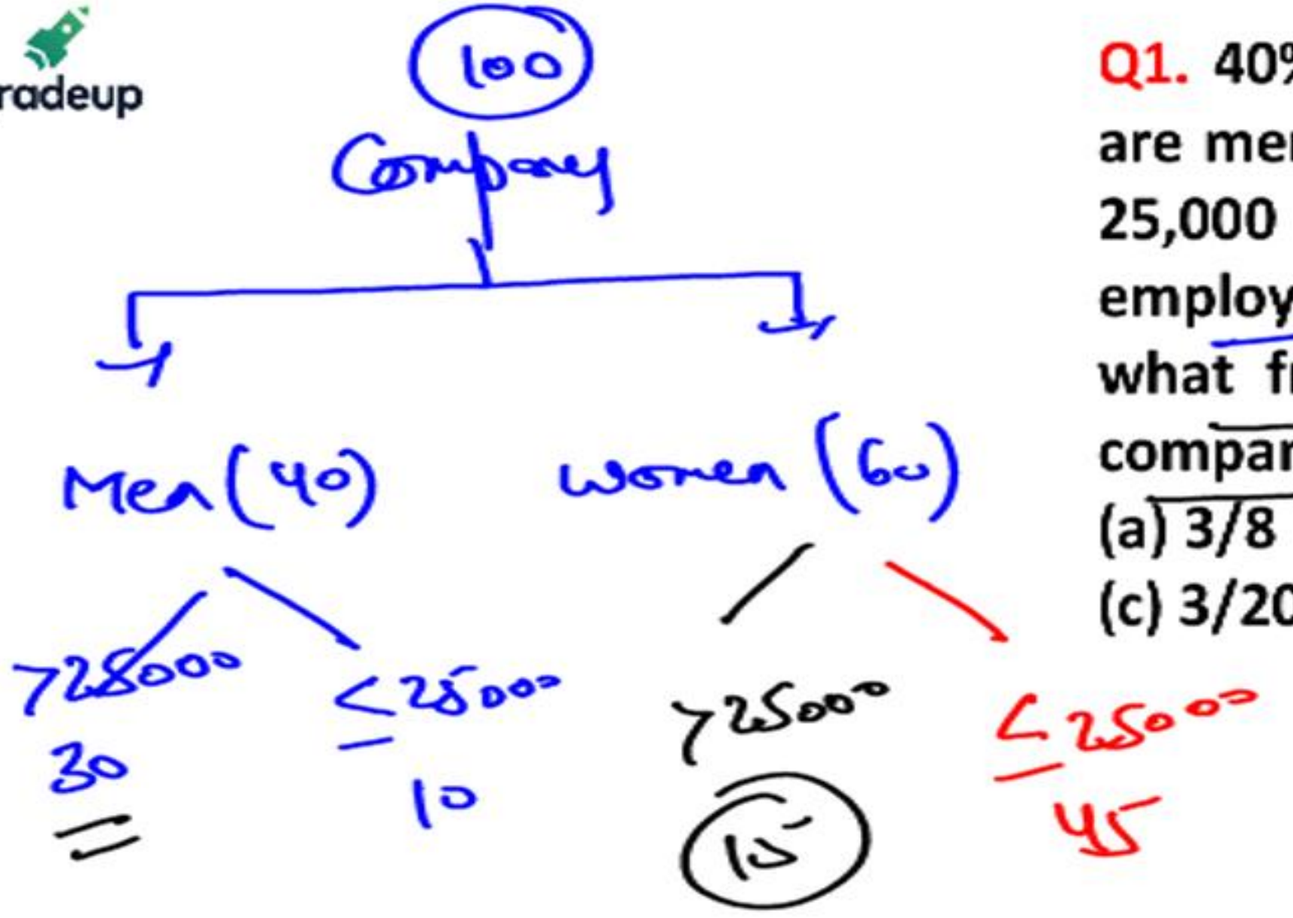
PRACTICE QUESTIONS



Q1. 40% of the employees of a certain company are men and 75% of the men earn more than Rs. 25,000 per year. If 45% of the company's employees earn more than Rs. 25,000 per year, what fraction of the women employed by the company earns Rs. 25,000 per year or less?

(a) 3/8 (b) 1/4

(c) 3/20 (d) 3/4

45/60 = 3/4

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Q2. A school has 2000 students, out of which 40% of the students are in higher secondary. Out of the students in the higher secondary, 28% are girls and 50% of them passed. The overall pass percentage in the higher secondary is 40%. How many boys passed?

(A) 208
(B) 320
(C) 200
(D) 96

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Ans. (A)

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Q3. A's salary is 20% less than B's salary. If C's salary is Rs.10000 and it is 25% more than B's salary, then what is A's salary?

(A) Rs.6000
(B) Rs.9600
(C) Rs.8000
(D) Rs.6400

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Ans. (D)

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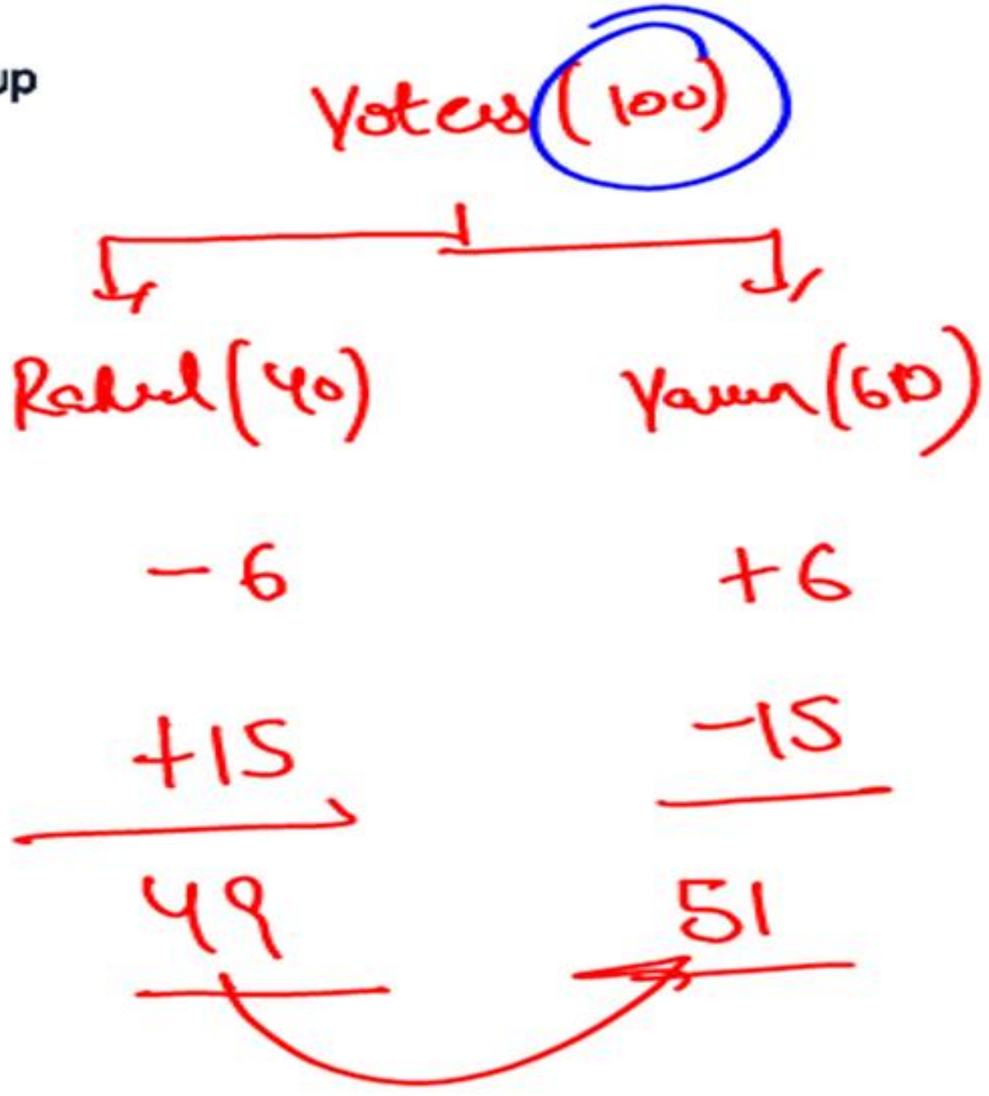

Q4. In an election Rahul and Varun participated 2/5 of the voters promised to vote for Rahul and rest promised to vote for Varun. On the voting day 15% of the voters went back on their promise to vote for Rahul and 25% of the voters went back on their promise to vote for Varun. Find the total number of voters, if Varun won by 750 votes?

A. 25000
B. 20000
C. 30000
D. 37500

$2 \rightarrow 750$

$100 \rightarrow 37500$

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Ans. (D)

gradeup

Q5. A salesman is allowed 12% commission on the total sales made by him and a bonus of 1% on the sales over Rs. 15000. If the total earning of a salesman is Rs. 7650. Find total sales.

A. 48000
B. 54000
C. 60000
D. 72000

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Ans. (C)

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Q6. A company gives 12% commission on the total sales made by him and a bonus of 1% on the sale above 15000. If the salesman deposited Rs. 52350 in the company after deducting his earning from total sales made by him. Find total sales.

A. 54000
B. 60000
C. 64000
D. 56225

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Ans. (B)

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Q7. If the income tax is increased by 19%, the net income is reduced by 1%. Find the rate of income tax.

A. 6%

B. 4%

C. 5%

D. 4.2%

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Ans. (c)

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Q8. Fresh fruits contain 76% water and dry fruits contain 20% water. How much dry fruits can be obtained from 100 kgs of fresh fruits?

A. 40 kg

B. 30 kg

C. 48 kg

D. None of these

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Ans. (B)

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Q9. In an examination, a student who gets 20 % marks fails by 5 marks. Another students who scores 30% of the maximum marks gets 20 marks more than the passing marks. What is the necessary percentage required for passing?

A. 32%

B. 23%

C. 22%

D. 20%

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Ans. (c)

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Q10. The ratio of two numbers is 5/6 : 2/3. By what percentage is the second number more/less than the first number?

(A) 20% less

(B) 25% more

(C) 25% less

(D) 20% more

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Ans. (A)

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Q11. There are three natural numbers. The first and second are less than the third by 40% and 50% respectively. What percentage of the second number is the first number?

(A) 125%

(B) $133\frac{1}{3}\%$

(C) $116\frac{2}{3}\%$

(D) 120%

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Ans. (D)

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Rice Fish Oil

1200 : 1700 . 300

↑20% ↑30% ↑50%

Q12. The expenses on rice, fish and oil of a family are in the ratio 12:17:3. The prices of these articles are increased by 20%, 30% and 50% respectively. The total expense of family on these articles is increased by

A. $14\frac{1}{8}\%$

B. $7\frac{1}{8}\%$

C. $56\frac{1}{8}\%$

D. $28\frac{1}{8}\%$

Detailed

$$\frac{240+510+150}{1200+1700+300} \cdot 100$$

$$\frac{225}{8} \cdot \frac{100}{3200} = 28\frac{1}{8}\%$$

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Q13. The price of an article was first increased by r% and then decreased by r%. If the latest price is Rs. 1 then what was the original price (in Rs.)?

A. 1

B. $\frac{1-r^2}{100}$

C. $\frac{\sqrt{1-r^2}}{10000}$

D. $\frac{10000}{10000-r^2}$

$I \cdot \left(\frac{100+x}{100}\right)\left(\frac{100-x}{100}\right) = 1$

$I = \frac{10000}{10000-x^2}$

20% ↑ 120% → $\frac{120}{100}$

logical

↑ x% ↓ x% (B)

decreases

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Q14. A reduction of 50 paisa per dozen in the price of eggs, a person buy 1 dozen more eggs for Rs. 66. Find the original price?

A. 5 Rs. / Dozen
B. 6 Rs./Dozen
C. 7 Rs. / Dozen
D. 8 Rs. / Dozen

Original Price

x Rs/dozen

$$\text{Qty} = \frac{66}{x}$$

x - 0.5

$$\text{Qty} = \frac{66}{(x-0.5)}$$

Price x Qty = Exp

↓ 50p/dozen 1 dozen = 66 Rs

$$\frac{66}{x-0.5} - \frac{66}{x} = 1$$

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Q15. The monthly income of Ram increased by 26%. His expenditure which is 70% of his monthly income increased by 20%. His savings must have increased by

(A) 40%
(B) 30%
(C) 50%
(D) 25%

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Ans. (A)

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Q16. The breadth of a rectangle decreases by 20% and then increases by 30%. By what percent should the length decrease, so that the area remains unchanged?

(A) $3\frac{9}{13}\%$

(B) $3\frac{8}{13}\%$

(C) $3\frac{10}{13}\%$

(D) $3\frac{11}{13}\%$

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Ans. (D)

gradeup

Q17. The cost of an apple is twice that of a banana and the cost a banana is 25% less than that of a guava. If the cost of each type of fruit increases by 10%, then the percentage increase in the cost of 4 bananas, 2 apples and 3 guavas is

A. 10%

B. 12%

C. 16%

D. 18%

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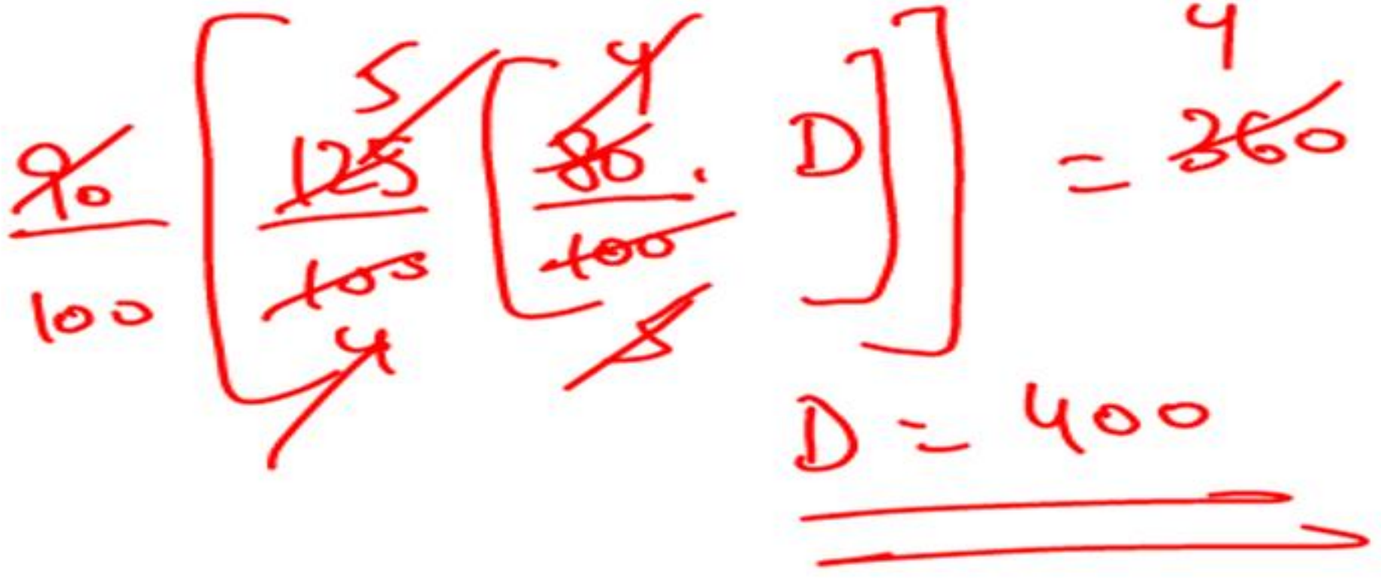
Q18. In an examination in which full marks were 500. A got 10% less than B. B got 25% more than C. C got 20% less than D. If A got 360 marks, what percentage of full marks was obtained by D?

A. 90%
B. 80%
C. 50%
D. 60%



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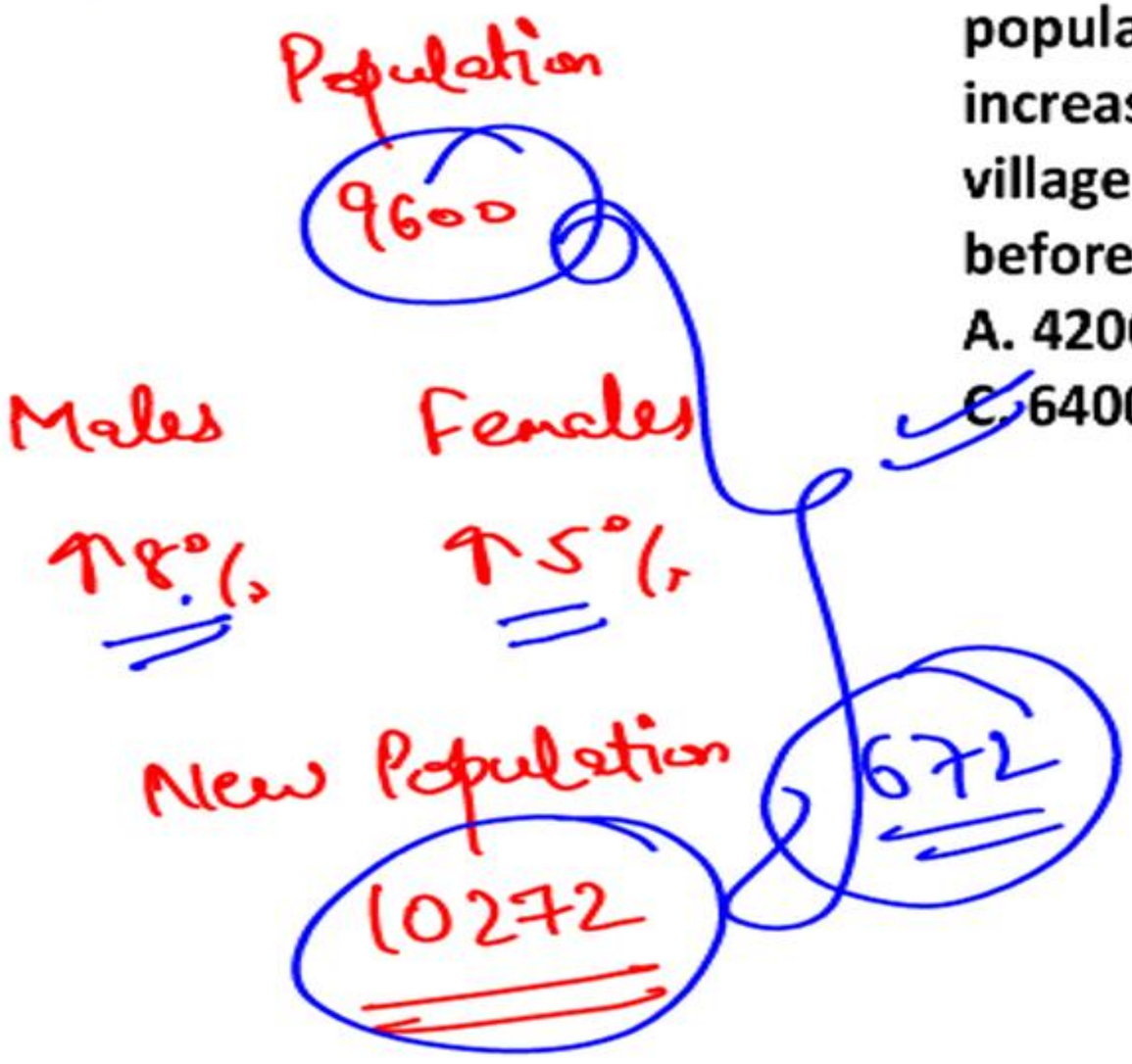
Q19. The population of village was 9600 if population of males increases by 8% & females increases by 5% then the new population of the village is 10272. Find the population of males before increases?

A. 4200
B. 4410
C. 6400
D. 6048



5% of 9600 ⇒ 480

extra increase ⇒ 192

3% of M = 192

M = 6400

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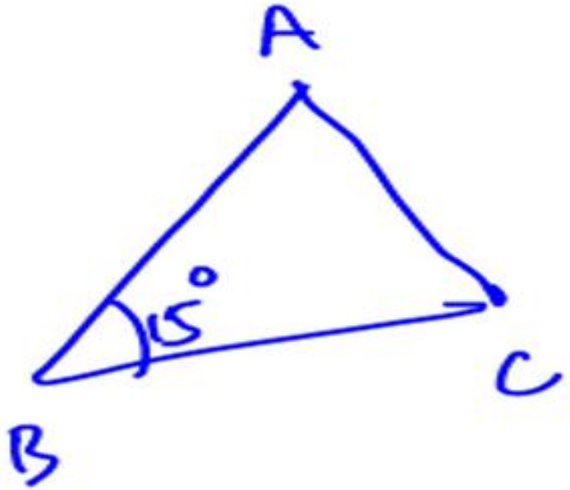
Q20. In the country of Tattoland, a new term ~~percentage~~ has been introduced in the place of percentage. While percentage is per 100, ~~percentage~~ is per 125. What will be the ~~percentage~~ marks obtained by a student in Tattoland if his percentage of marks is 60?

A. 48 %
B. 75 %
C. 60 %
D. Cannot be determined

$$\frac{60}{100} = \frac{x}{125}$$

$$25$$

$$x = 75$$



Q21. In a ΔABC measurement of ∠ABC = 15°. What will be the value of ∠ABC when seen through a magnifying glass which can magnify any object by 20%?

A. Value reduce by 20%

B. Same

C. Value increased by 20%

D. Value decreased by 16.66%

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V.Imp

HOMEWORK

Q22. Ratio of Boys and Girls for examination is 16 : 9. The ratio of passing the examination of the boys and girls is 5 : 4. If 80% girls passed the examination. Find the percentage of passing boys an also find the total percentage of pass students.

A. 25.64% and 56.8%

B. 56.25% and 64.8%

C. 64.25% and 56.8%

D. 65.25 and 56.8%