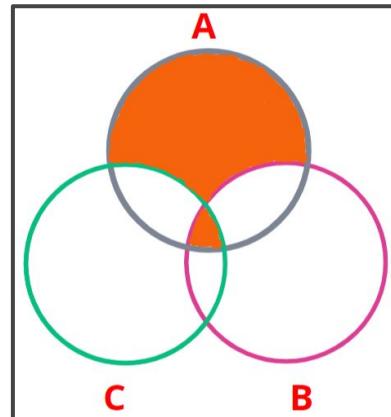


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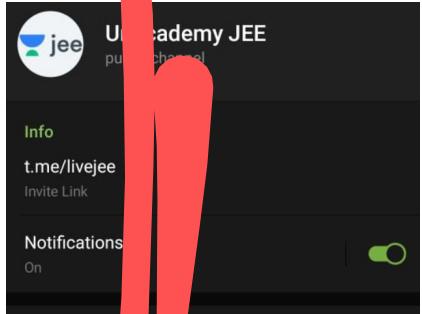
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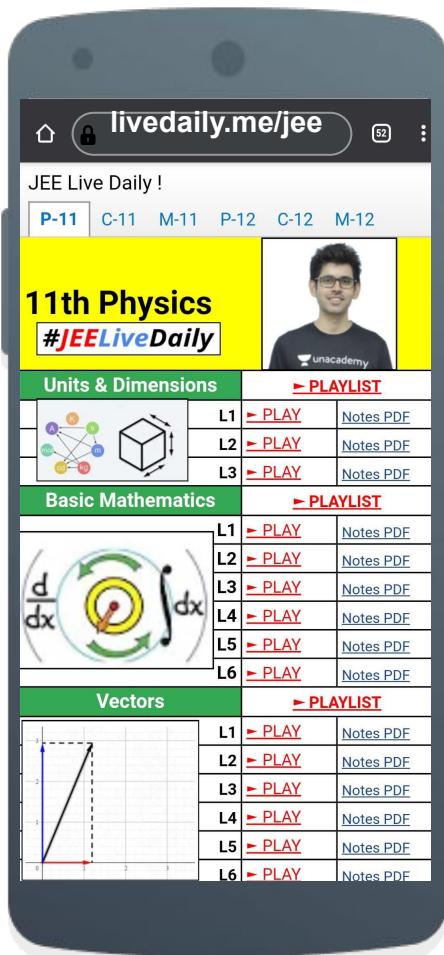
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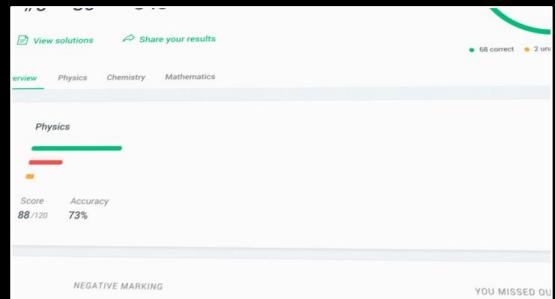
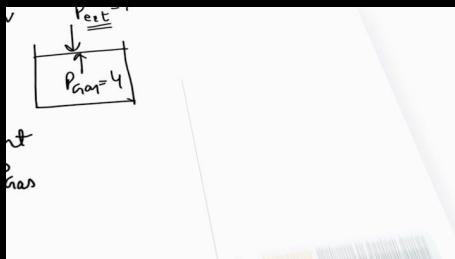


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A shell is fired from a point O at an angle of 60 degrees with a speed of 40 m/s & it strikes a horizontal plane through O at a point A. The gun is fired a second time with the same angle of elevation but a different speed v if it strikes the same point A, then the value of v is  
 $9\sqrt{3}$  m/s. At the same instant, on the shell is fired, find v.  
(Take  $g = 10 \text{ m/s}^2$ )

As 'I' changes, 'Φ' changes and emf is induced  
this emf is called **'Self-induced emf'**  
as emf is induced because of ' $\Phi$  of loop itself.'

Corresponding induced emf

$$e = -L \frac{di}{dt}$$


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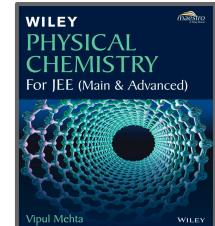
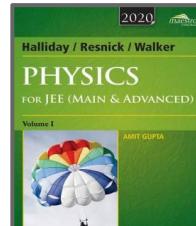
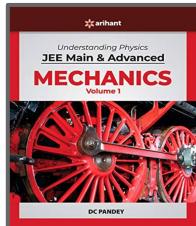
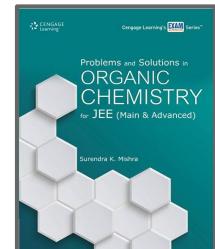
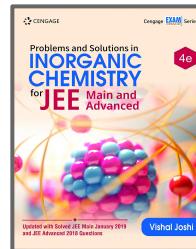
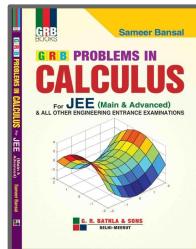
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Kalankar  
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Devashish Tripathi  
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Maroof  
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99.50



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Mihir Kothari  
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Sahil  
99.38



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99.34



Pratham Kadam  
99.29



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99.46



Shrish  
99.28



Yash Bhaskar  
99.10



Subhash Patel  
99.02



Ayush Kale  
98.85



Ayush Gupta  
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98.59



Naman Goyal  
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98.16

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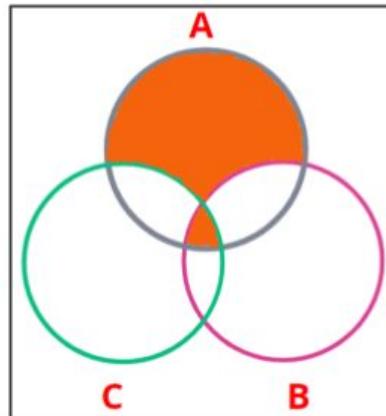
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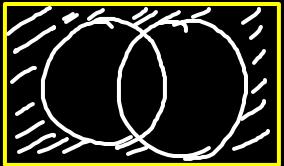
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If  $n(U) = 700$ ,  $n(A) = 200$ ,  $n(B) = 300$ ,  $n(A \cap B) = 100$ , then  $n(A' \cap B') =$

A. 400

C. 240



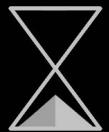
B. 500

D. None of these

$$n(A' \cap B') = n((A \cup B)')$$

$$= n(\underline{\underline{U}}) - n(\underline{\underline{A \cup B}})$$

$$\begin{aligned} n(A \cup B) &= 200 + 300 - 100 \\ &= 400 \end{aligned}$$



If  $\underline{A} = \{2, 3, 4\}$ ,  $\underline{X} = \{0, 1, 2, 3, 4\}$ , then:

~~A.~~  $\underline{\{0\}} \in A'$  w.r.t.  $X$

~~C.~~  $\underline{\{0\}} \subset A'$  w.r.t.  $X$

B.  $\underline{\phi} \in A'$  w.r.t.  $X$

D.  $\underline{\emptyset} \subset A'$  w.r.t.  $X$

✓  $\in$  : belongs       $A' \rightarrow \phi, \{\underline{0}\}, \{1\}$

✓  $\subset$  : sub set.       $\xrightarrow{\text{subset}} \{0, 1\}$

$$A' = X - A$$

$$= \{0, 1\}$$



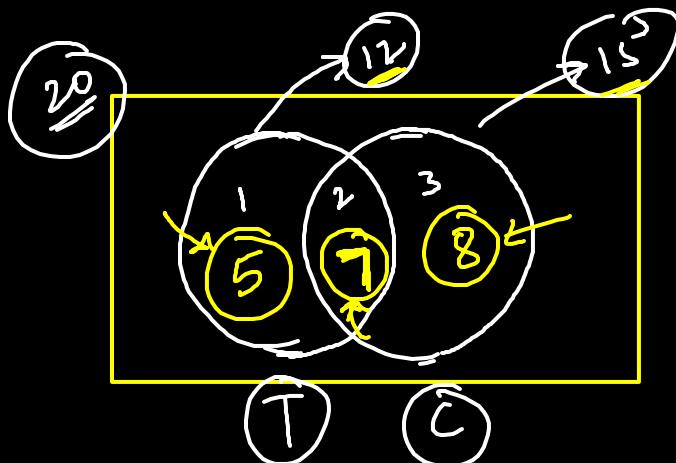
Out of **20 members** in a family, **12** like tea and **15** like coffee. Assuming that each one likes at least one of the two drinks, the number of people liking :

- A. Only tea and not coffee is **7** ✗
- B.** Only coffee and not tea is **8** ✓
- C. Both tea and coffee is **5** ✗
- D. All the above

$$P(T \cup C) = P(T) + P(C) - P(T \cap C)$$

$$20 = 12 + 15 - x$$

$$x = ?$$





Suppose  $A_1, A_2, \dots, A_{30}$  are 30 sets, each with 5 elements and  $B_1, B_2, \dots, B_n$  are n sets, each with 3

elements. Let  $\bigcup_{i=1}^{30} A_i = \bigcup_{j=1}^n B_j = S$ . If each element of  $S$

belongs to exactly 10 of  $A_i$ 's and exactly 9 of the  $B_j$ 's

Then n is equal to:

A. 45

C. 40

B. 35

D. None of these

$$\left\{ \begin{array}{l} \text{Element } x \in S \\ 30 \times 5 = 10 \times x \\ x = 15 \\ n \times 3 = 15 \times 9 \\ n = 45 \end{array} \right.$$

5 sets

$$\underbrace{A_1 \cup A_2 \cup A_3 \cup \dots \cup A_{30}}_5 = S$$

$$\underbrace{B_1 \cup B_2 \cup B_3 \cup \dots \cup B_n}_3 = S$$

3 blocks



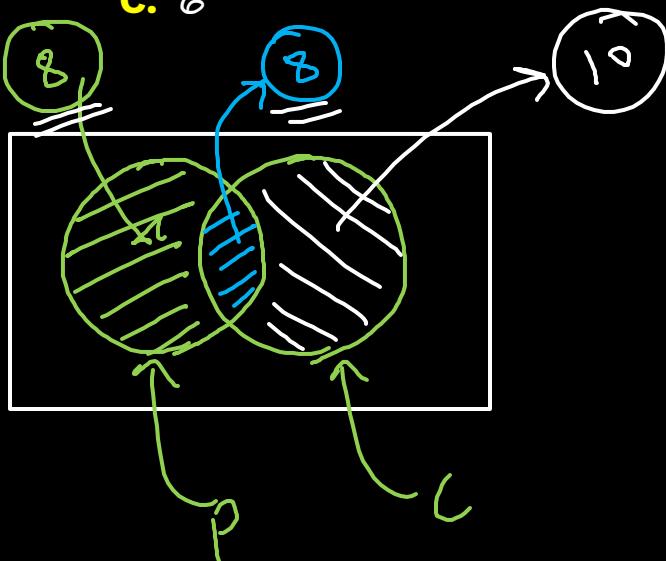
In a group of **26** people, **8** like pepsi but not coke and **16** like pepsi. Number of people who like coke but not pepsi is:

A. 10

B. 8

C. 6

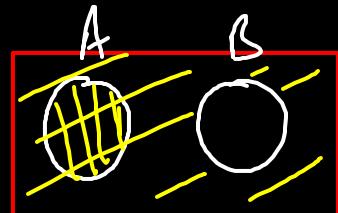
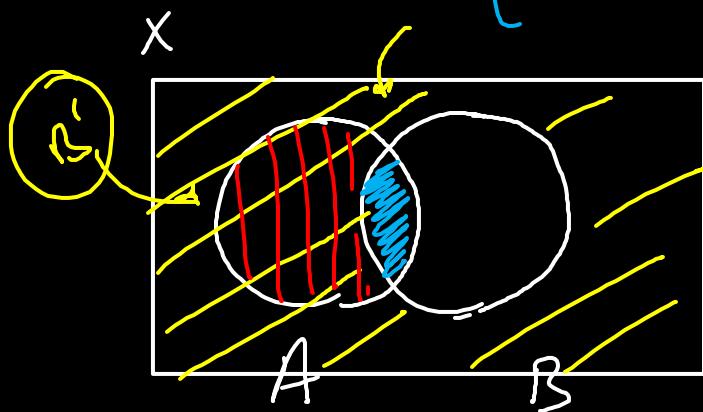
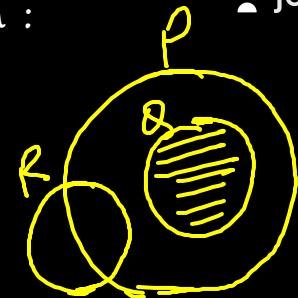
D. None of these



Let  $A$  and  $B$  be non-empty subsets of  $X$  such that  $A \not\subset B$ . Then :

- A.  $A$  is a subset of  $B'$   $\times$
- B.  $B \subset A$   $\times$
- C.  $A$  and  $B$  are disjoint  $\rightarrow$
- D.  $A \cap B' \neq \emptyset$   $\checkmark$

$= =$





The finite sets have  $m$  and  $n$  elements, the total number of subsets of the first set is **56** more than the number of subsets of 2<sup>nd</sup> set, then  $m$  and  $n$  are

A. 7, 6

✓ B. 6, 3

C. 5, 1

D. 8, 7

$$2^m - 2^n = 56$$

M = b  
n = 3 ✓

$$2^n (2^{(m-n)-1}) = 8 \times 7$$

$$2^n (2^{m-n} - 1) = 2^3 \times (2^3 - 1)$$



If  $A = \{\Phi, \{\Phi\}\}$ , then the power set  $P(A)$  of  $A$  is :

~~A.~~  $A = \{\Phi, \{\Phi\}\}$

~~C.~~  $\{ \Phi, \{\Phi\}, \{\{\Phi\}\}, A \}$

~~B.~~  $\{ \Phi, \{\Phi\}, A \}$

**D.** None of these

$n(A) = 2$   $\rightarrow$  subset  $= 2^2 = 4$

$n(P(A)) = 4$

$\{ \Phi, \{\Phi\}, \{\{\Phi\}\}, A \}$

$\rightarrow A = \{ \underline{1}, \underline{2} \}$

subset:  $\{ \emptyset, \{1\}, \{2\}, \{1, 2\} \}$



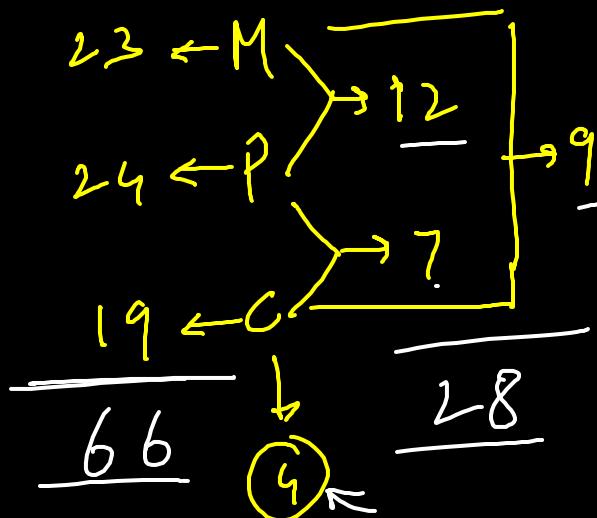
In a class of 55 students, 23 study music, 24 study psychology and 19 study computers, 12 study music and psychology, 9 study music and computers, 7 study psychology and computers and 4 study all the three. Number of students who have only one of the three subjects is:

A. 6

B. 7

C. 9

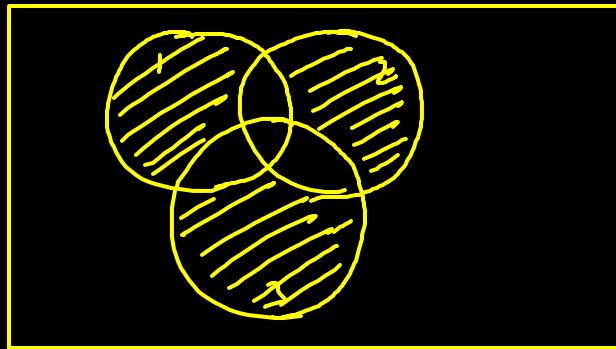
D. 22



$$66 - 2 \times 28 + 3 \times 4$$

$$66 - 56 + 12$$

22



$$\begin{aligned} & n(A) + n(B) + n(C) \\ & - 2 \left[ n(A \cap B) + n(B \cap C) + n(C \cap A) \right] \\ & + 3 n(A \cap B \cap C) \end{aligned}$$



In a factory 70% of the workers like oranges and 64% like apples. If  $x\%$  like both oranges and apples, then  $x$

jee

A.  $x \leq 34$

B.  $x \geq 64$

C.  $34 \leq x \leq 64$

D. None of these

$$n(O \cup A) = \underline{\underline{n(O)}} + \underline{\underline{n(A)}} - \underline{\underline{n(O \cap A)}}$$

$$\begin{aligned} n(O \cap A) &= \underbrace{70 + 64}_{=} - \underline{\underline{n(O \cup A)}} \\ &= 134 - [70, 100] \end{aligned}$$



A, B, C are the sets of letters needed to spell the words STUDENT, PROGRESS & CONGRUENT, respectively/ Then  $n(A \cup (\underline{\underline{B}} \cap C))$  is equal to

A. 8

C. 10

B. 9

D. 11

$$\boxed{A \cup \underbrace{B \cap C}} \quad \{S, T, U, D, E, N, R, O, G\}$$

$$A = \{S, T, U, D, E, N\}$$

$$B = \{P, R, Q, G, E, S\}$$

$$C = \{C, O, N, G, R, U, E, T\}$$

$$B \cap C = \{R, O, G, E\}$$

Let  $A = \{x : x \text{ is a prime factor of } \underline{\underline{240}}\}$   $B = \{x : x \text{ is the sum of any two prime factors of } \underline{\underline{240}}\}$ . Then

**A.**  $5 \notin A \cap B$

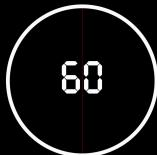
**C.**  $8 \in A \cap B$

$$\left. \begin{array}{l} \text{B. } 7 \in A \cap B \\ \text{D. } 8 \in A \cup B \end{array} \right\} \begin{aligned} 240 &= 2^4 \times 15 \\ &= 8 \times 3 \times 2 \times 5 \\ &= \underline{\underline{2^4}} \cdot \underline{\underline{3}} \cdot \underline{\underline{5}} \end{aligned}$$

$$A = \{ \underline{\underline{2}}, \underline{\underline{3}}, \underline{\underline{5}} \}$$

$$B = \{ 5, \underline{\underline{8}}, 7 \}$$

$$A \cap B = \{ 5 \}$$



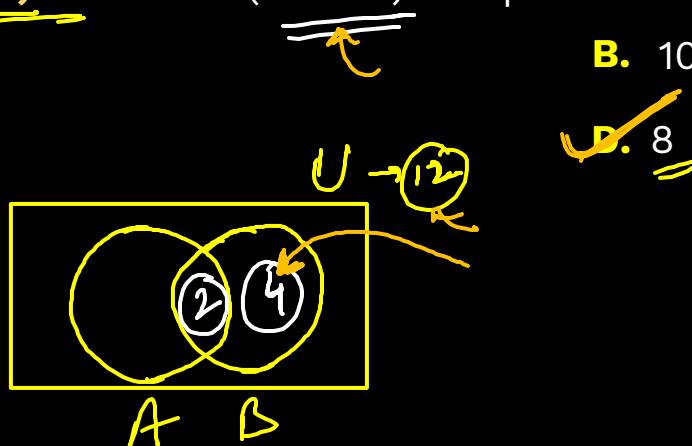
Let  $U$  be a universal set and  $n(U) = 12$ . If  $A, B \subseteq U$  are such that  $n(B) = 6$  and  $n(A \cap B) = 2$  then  $n(A \cup B')$  is equal to

A. 6

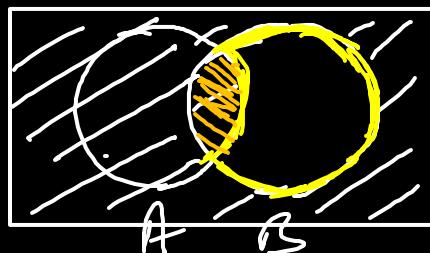
C. 7

B. 10

D. 8



$A \cup B'$





If A and B both contain same number of elements & are finite sets then

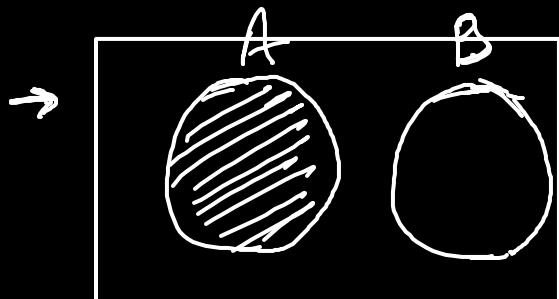
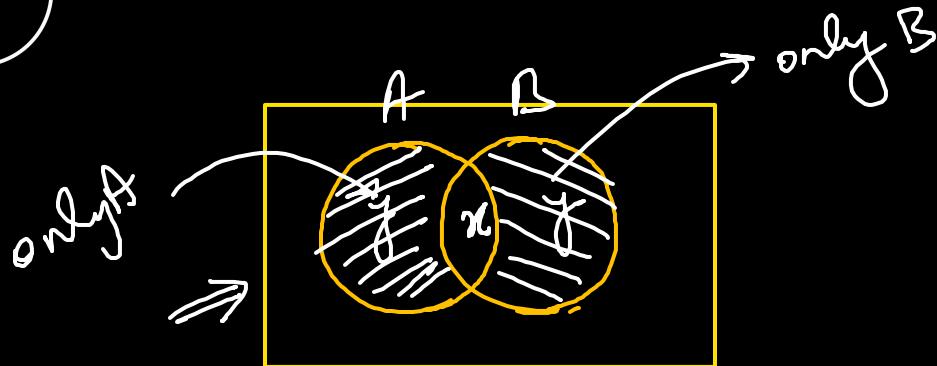
~~A.~~  $n(A \cup B) = n(A \cap B)$

~~B.~~  $n(A \sim B) = n(B \sim A)$  ✓

~~C.~~  $n(A \Delta B) = n(B)$  ✗

~~D.~~  $n(A \sim B) = n(A)$

~





In a class **60%** passed their Physics examination and **58%** passed in Mathematics. At least **that** percentage of students passed both their Physics & mathematics examination?

**A.** 18 % ✓

**C.** 16 %

**B.** 17%

**D.** 2 %

**JEE \***

$$n(P) = 60$$

$$n(M) = 58$$

$$n(P \cup M) = n(P) + n(M) - n(P \cap M)$$

$$\boxed{n(P \cap M)} = 60 + 58 - \boxed{n(P \cup M)}$$

min ↗ ↘ max

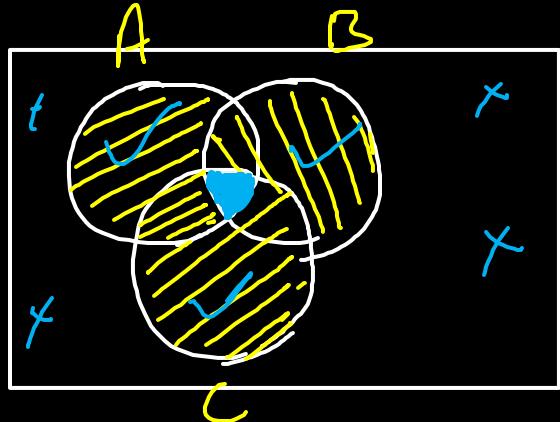
$$\{ = 60 + 58 - 100$$



Let  $U$  be the universal set and  $A \cup B \cup C = U$ , then  
 $\{(A - B) \cup (B - C) \cup (C - A)\}'$  is

- A.  $A \cup B \cup C$
- C.  $A \cap B \cap C$  ✓

- B.  $A \cup (B \cap C)$
- D.  $A \cap (B \cup C)$



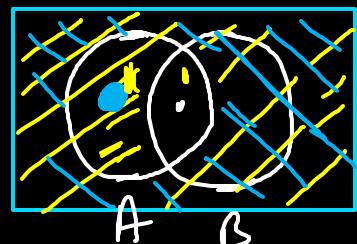
Which of the following statements is / are true?

- A.**  $((A' \cup B') - A)' = B$  X
- B.**  $[B' \cup (B' - A)]' = A$  X
- C.**  $(A - B) - (B - C) = A - B$  ✓
- D.**  $(A - B) \cap (C - B) = (A \cap C) - B$  ✓

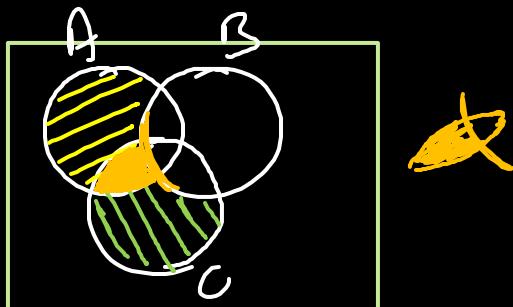
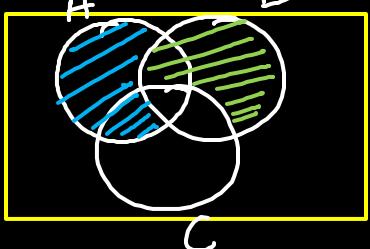


(More than one)

$$(B' \cup (B' - A))' = (B')'$$



$$((A \cap B)' - A)' = A$$





60

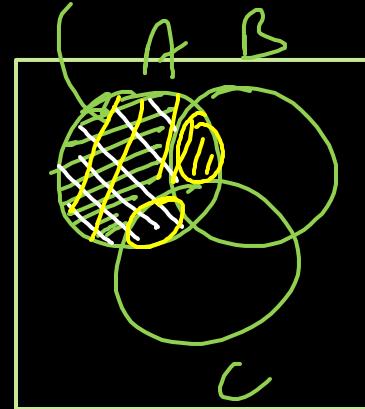
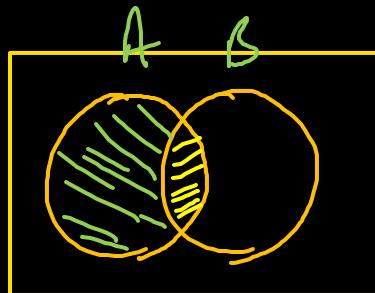
Consider the following relations:

1.  $A - B = A - (A \cap B) =$
2.  $A = (A \cap B) \cup (A - B)$
3.  $A - (B \cup C) = (A - B) \cup (A - C) \times$

Which of the following is correct?

- A.** 1 and 3      **B.** 2 only  
**C.** 2 and 3      **D.** 1 and 2

Only B.



# Daily | TIMETABLE

11<sup>th</sup>



Namo Sir | Physics

6:00 - 7:30 PM



Ashwani Sir | Chemistry

7:30 - 9:00 PM



Sameer Sir | Maths

9:00 - 10:30 PM

12<sup>th</sup>



Jayant Sir | Physics

1:30 - 3:00 PM



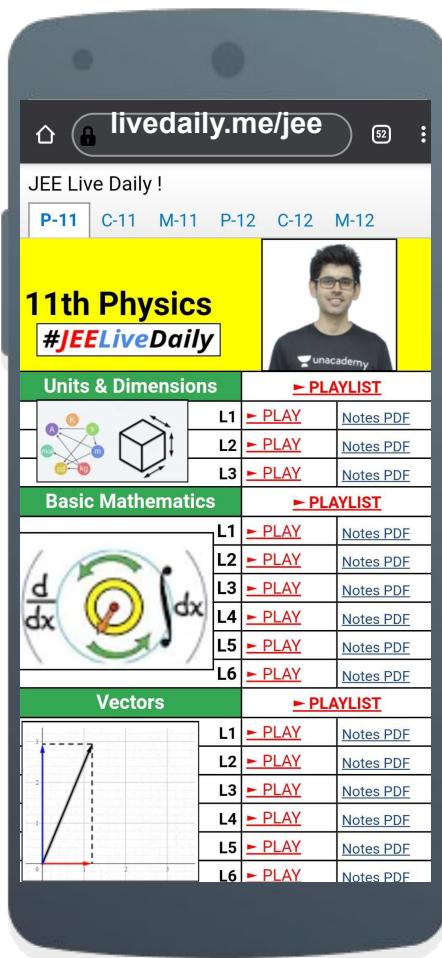
Anupam Sir | Chemistry

3:00 - 4:30 PM



Nishant Sir | Maths

4:30 - 6:00 PM

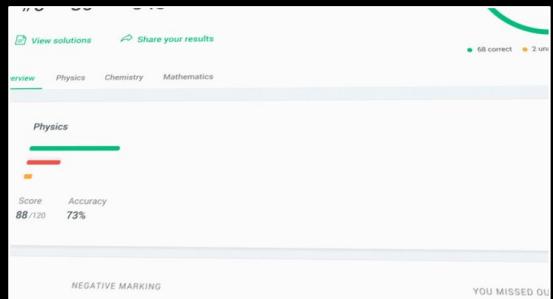
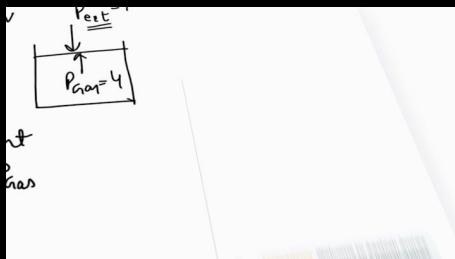


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A shell is fired from a point O at an angle of 60 degrees with a speed of 40 m/s & it strikes a horizontal plane through O at a point A. The gun is fired a second time with the same angle of elevation but a different speed v if it strikes the same point A, then the value of v is  
 $9\sqrt{3}$  m/s. At the same instant, on the shell is fired, find v.  
(Take  $g = 10 \text{ m/s}^2$ )

As 'I' changes, 'Φ' changes and emf is induced  
this emf is called **'Self-induced emf'**  
as emf is induced because of ' $\Phi$  of loop itself.'

Corresponding induced emf

$$e = -L \frac{di}{dt}$$


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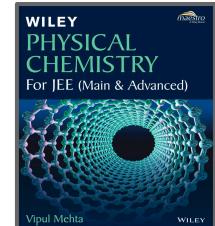
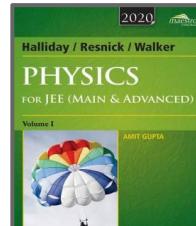
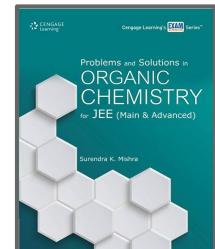
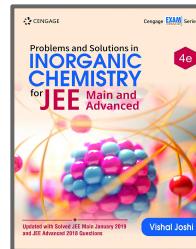
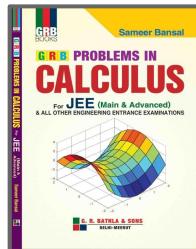
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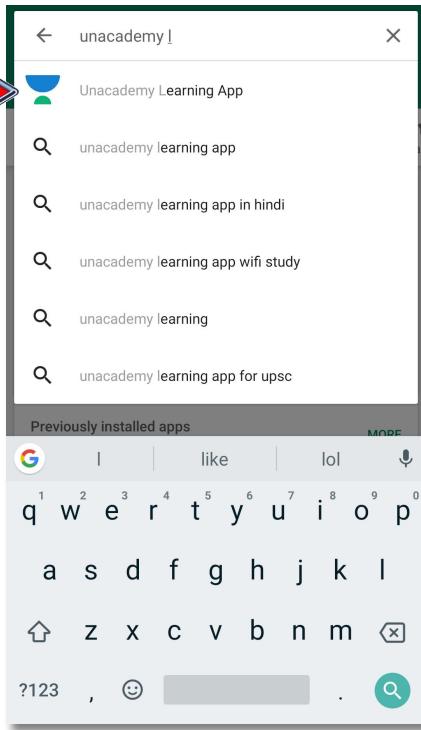
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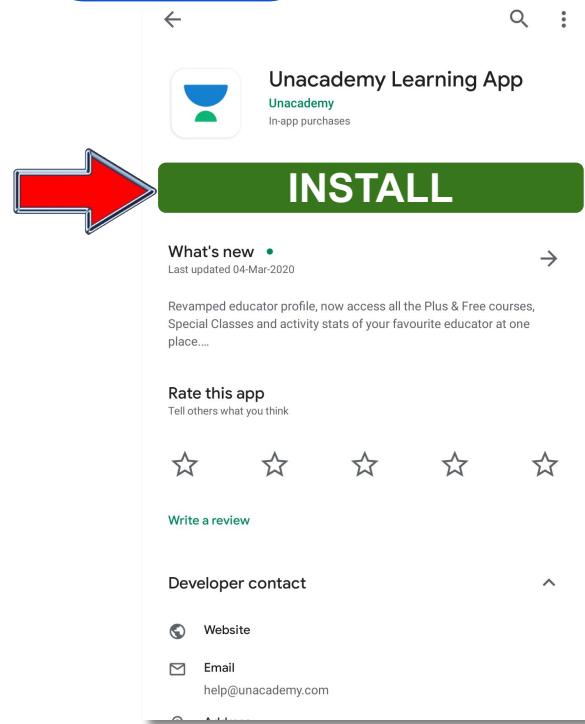
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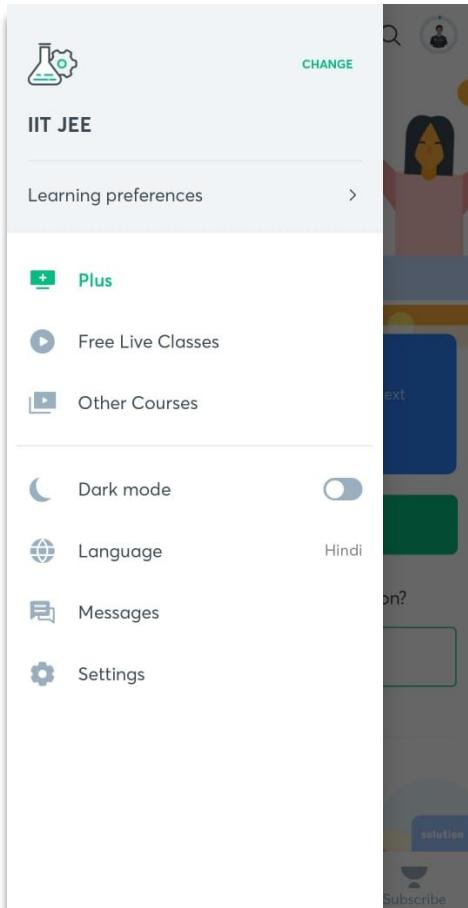


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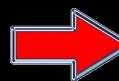
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