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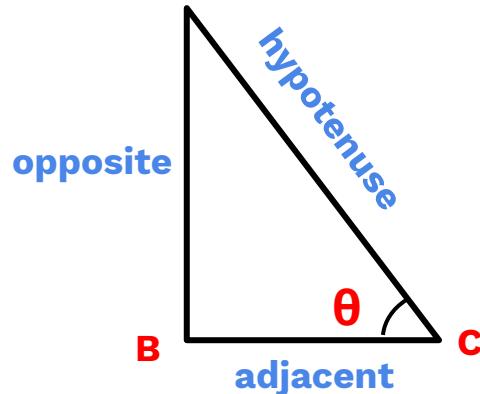


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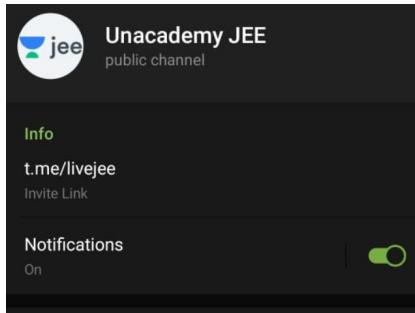
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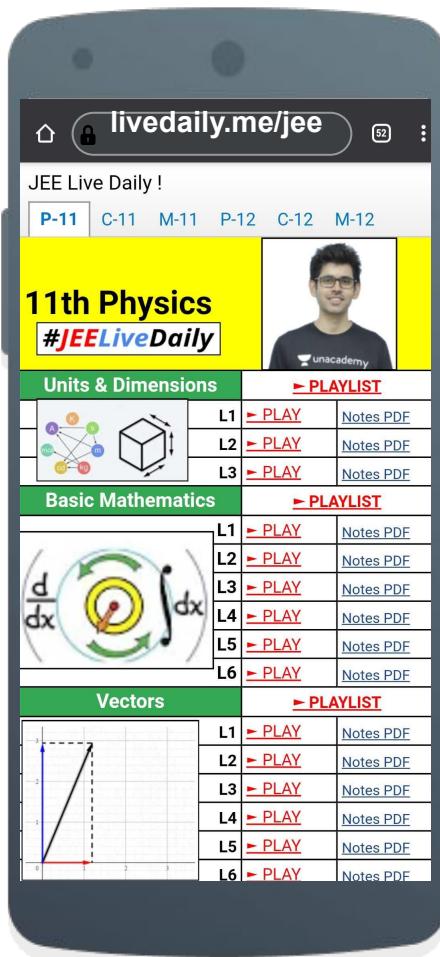
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 (Take g = 10 m/s²)

Self Inductance

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

Corresponding induced emf

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

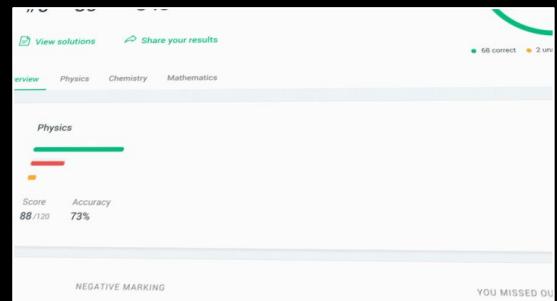
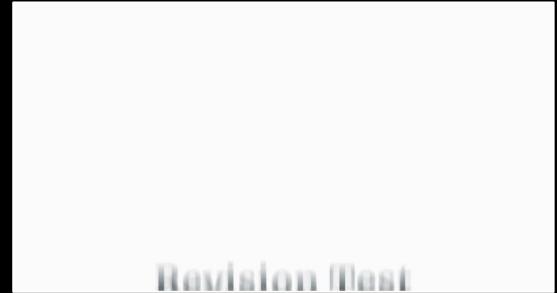
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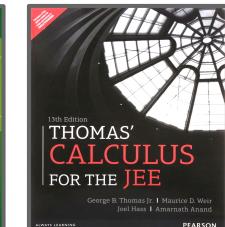
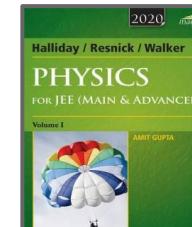
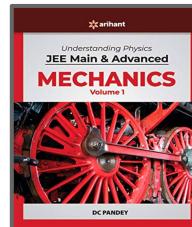
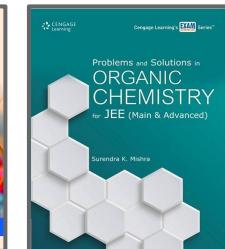
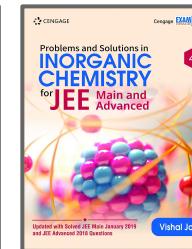
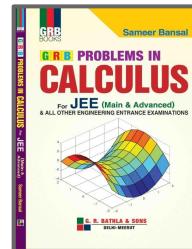
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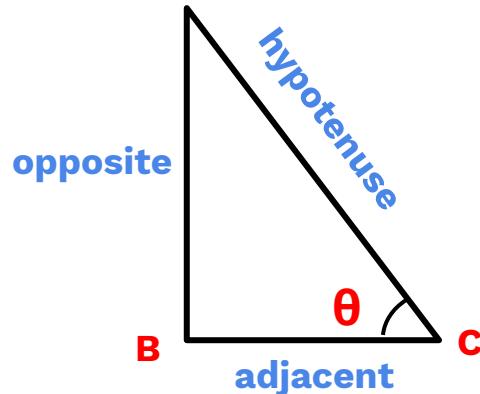


3.0

Trigonometry

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Sameer Chincholikar



Range of the **function** $\frac{24}{5 \cos x - 12 \sin x + 19}$ is equal to:

A. $\left[\frac{3}{4}, 3\right]$

B. $[2, 3]$

C. $\left[\frac{3}{4}, 2\right]$

D. $\left[\frac{3}{4}, 4\right]$



If $\sin \theta_1 - \sin \theta_2 = a$ and $\cos \theta_1 + \cos \theta_2 = b$, then

- A. $a^2 + b^2 \geq 4$ B. $a^2 + b^2 \leq 4$ C. $a^2 + b^2 \geq 3$ D. $a^2 + b^2 \leq 2$



If $f(x) = 5 \cos x + 3 \cos\left(x + \frac{\pi}{3}\right) + 11$ then,

- A. $f(x)]_{\max} = 18$ B. $f(x)]_{\min} = 4$ C. $f(x)]_{\max} = 20$ D. None of these



The **greatest value** of the expression

$$\sin^2\left(\frac{15\pi}{8} - 4x\right) - \sin^2\left(\frac{17\pi}{8} - 4x\right) \text{ . For } 0 \leq x \leq \frac{\pi}{8} \text{ is}$$

- A.** 1/2 **B.** 2 **C.** 3 **D.** None of these



If **A, B, C and D** are the smallest positive angles in ascending orders of magnitude which have their **sines equal to the positive value ‘p’** ($p < 1$), then

$$4 \sin \frac{A}{2} + 3 \sin \frac{B}{2} + 2 \sin \frac{C}{2} + \sin \frac{D}{2} =$$

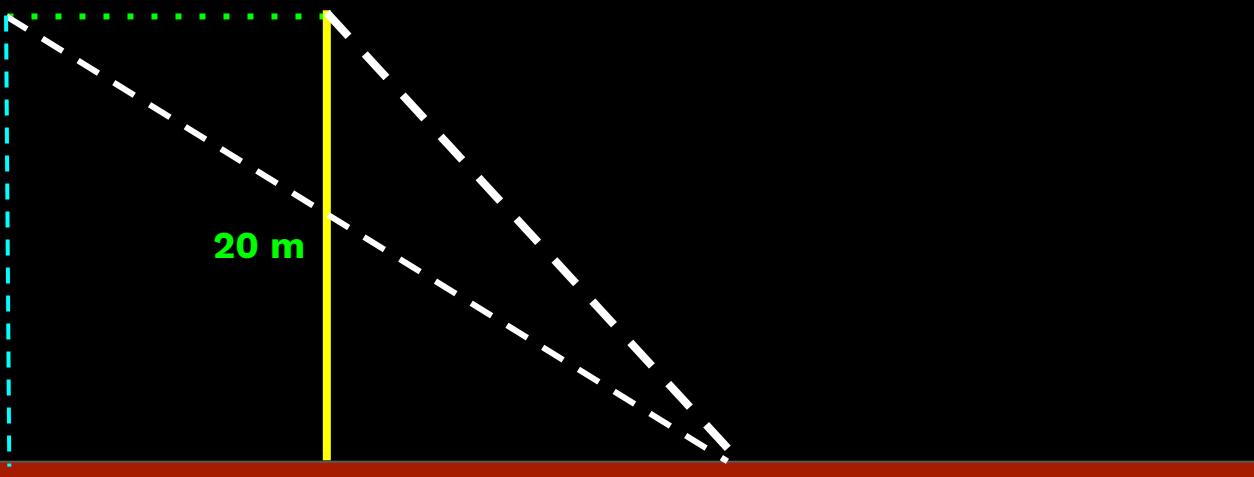
- A.** $2\sqrt{1+p}$ **B.** $2\sqrt{1-p}$ **C.** $\sqrt{1+p}$ **D.** $\sqrt{1-p}$



A bird is sitting on the top of a vertical pole **20 m** high and its elevation from a point **O** on the ground is **45°**. It flies off horizontally straight away from the point **O**. After one second, the elevation of the bird from **O** is reduced to **30°**. Then the speed (**in m/s**) of the bird is

2014

- A. $20\sqrt{2}$
- B. $20(\sqrt{3} - 1)$
- C. $40(\sqrt{2} - 1)$
- D. $40(\sqrt{3} - \sqrt{2})$

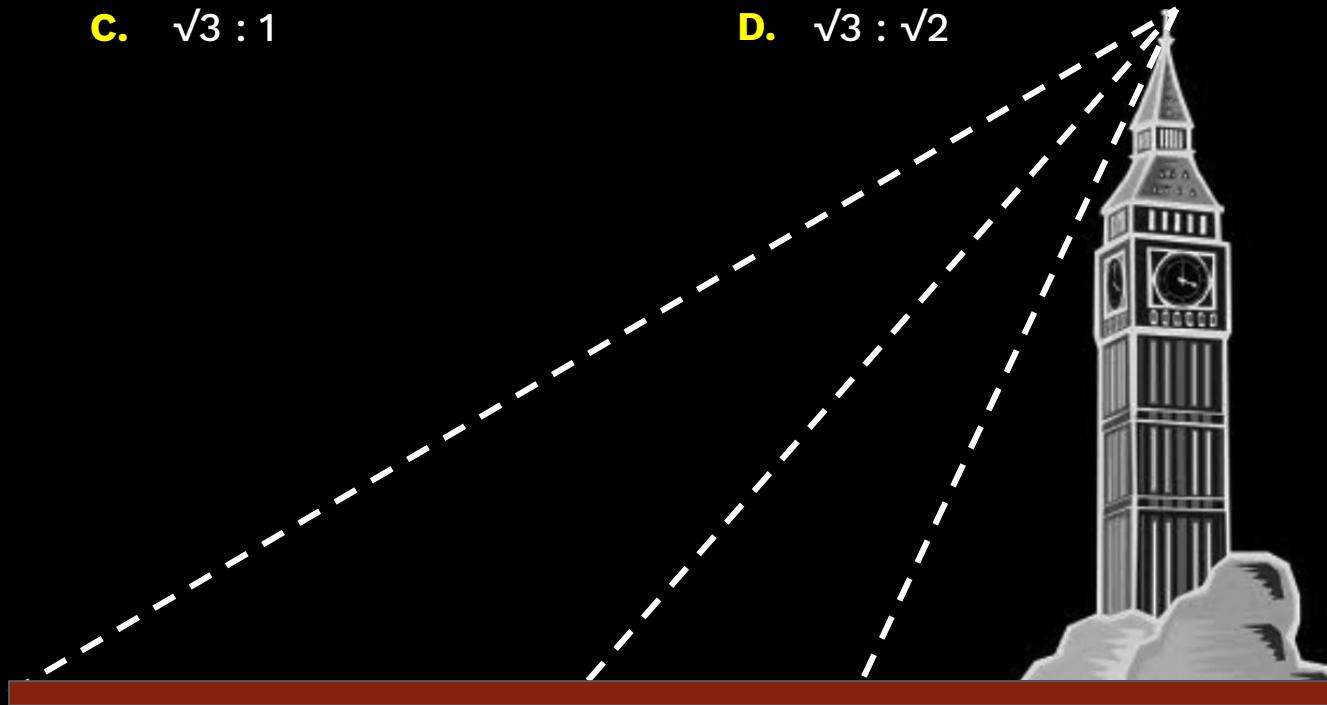




If the angles of elevation of the top of a tower from three collinear points A, B & C on a line leading to the foot of the tower are 30° , 45° & 60° respectively, then the ratio **AB : BC** is:

2015

- A. $1:\sqrt{3}$
- B. $2 : 3$
- C. $\sqrt{3} : 1$
- D. $\sqrt{3} : \sqrt{2}$

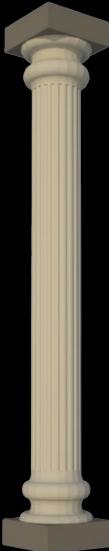




A man is walking towards a vertical pillar in a straight path, at a uniform speed. At a certain point A on the path, he observes that the angle of elevation of the top of the pillar is 30° . After walking for 10 minutes from A in the same direction, at a point B, he observes that the angle of elevation of the top of the pillar is 60° . Then the time taken (in minutes) by him, from B to reach the pillar, is:

- A. 20
- B. 5
- C. 6
- D. 10

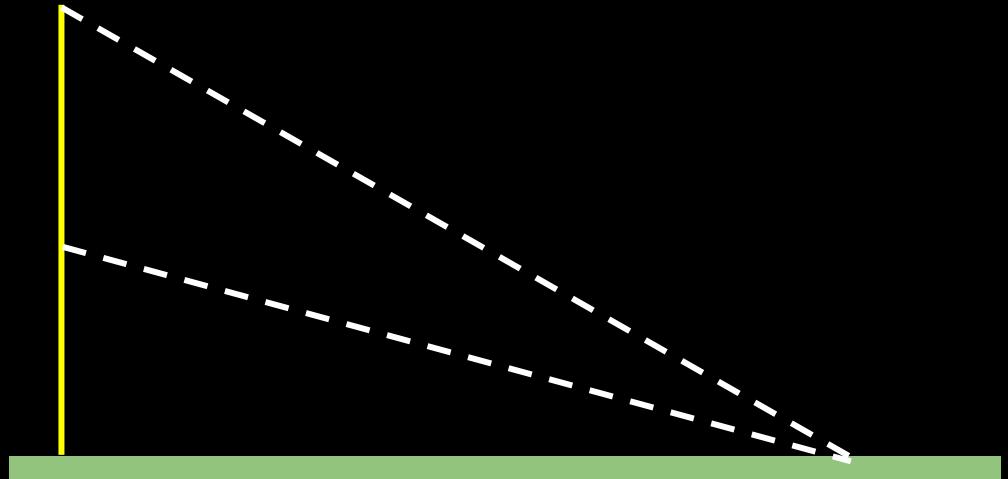
2016





Let a vertical tower AB have its end A on the level ground. Let C be the midpoint of AB and P be a point on the ground such that $\text{AP} = 2\text{AB}$. If $\angle \text{BPC} = \beta$, then $\tan \beta$ is equal to:

- A. $4/9$
- B. $6/7$
- C. $1/4$
- D. $2/9$

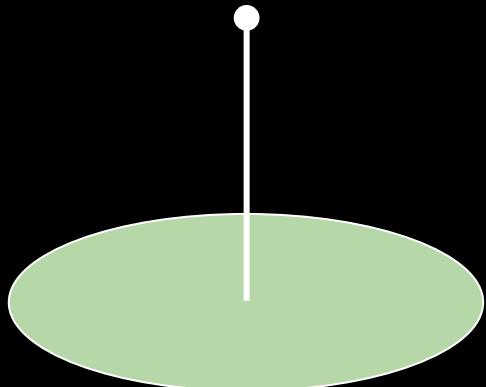




A tower stands at the centre of a circular park. A and B are two points on the boundary of the park such that **AB (= a)** subtends an angle of **60°** at the foot of the tower, & the angle of elevation of the top of the tower from **A or B is 30°** . The height of the tower is

- A.** $a/\sqrt{3}$
- B.** $a\sqrt{3}$
- C.** $2a/\sqrt{3}$
- D.** $2a\sqrt{3}$

2007

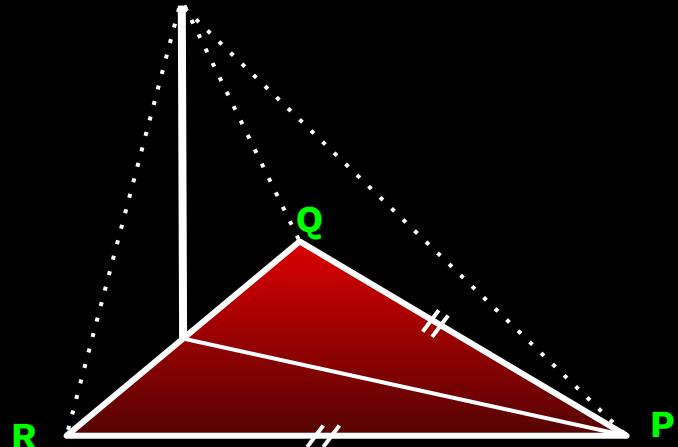




PQR is a triangular park with $\mathbf{PQ = PR = 200\text{m}}$. A T.V. tower stands at the midpoint of QR. if the angles of elevation of the top of the tower at P, Q and R are respectively 45° , 30° & 30° , then the height of the tower (in m) is:

- A. 50
- B. $100\sqrt{3}$
- C. $50\sqrt{2}$
- D. 100

2018





#JEELiveDaily Schedule



11th



Namo Sir | Physics

6:00 - 7:30 PM



Ashwani Sir | Chemistry

7:30 - 9:00 PM



Sameer Sir | Maths

9:00 - 10:30 PM

12th



Jayant Sir | Physics

1:30 - 3:00 PM



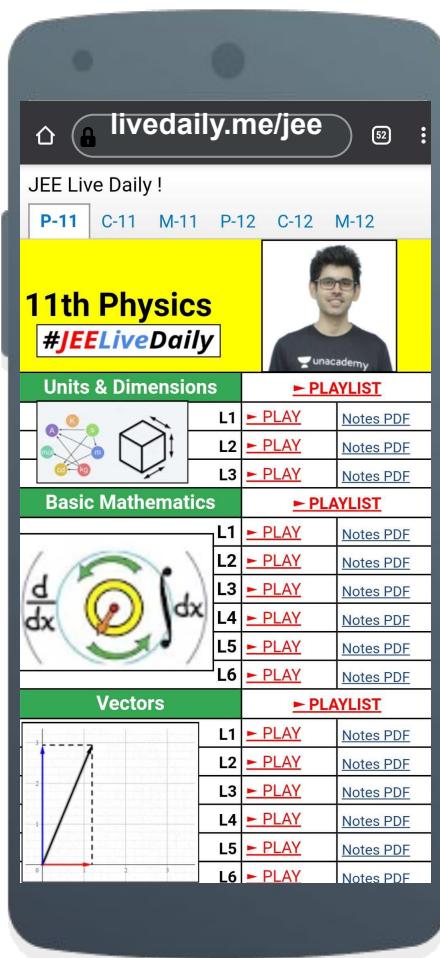
Anupam Sir | Chemistry

3:00 - 4:30 PM



Nishant Sir | Maths

4:30 - 6:00 PM

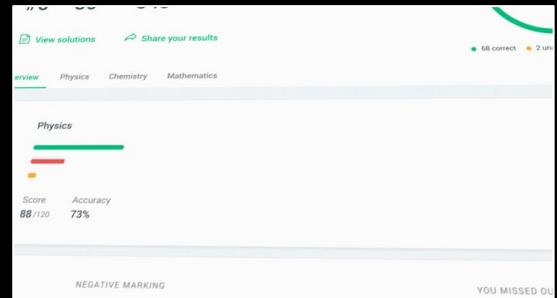
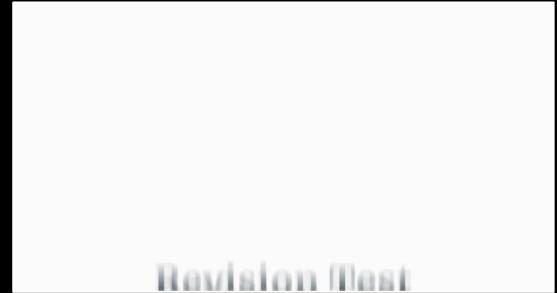
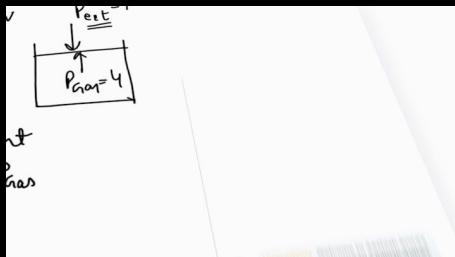


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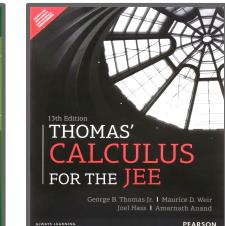
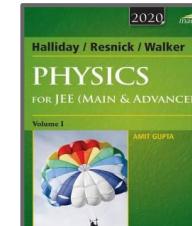
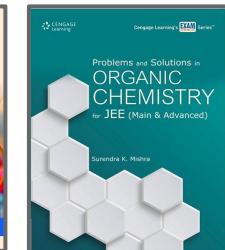
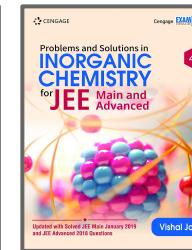
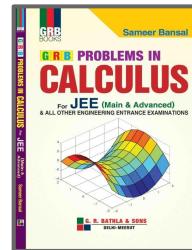
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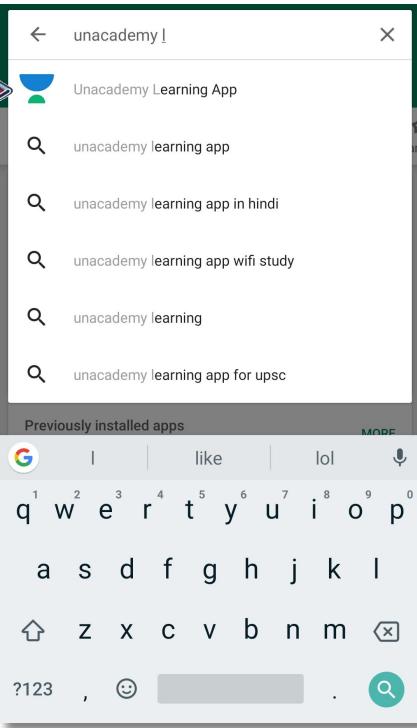


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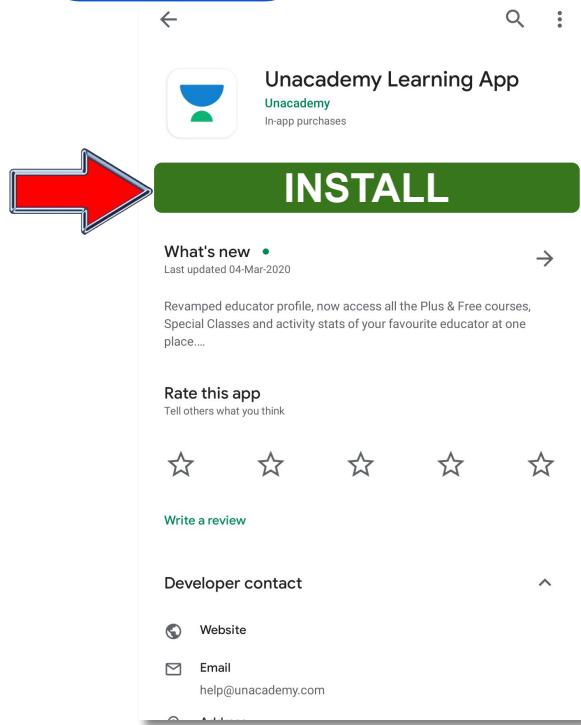


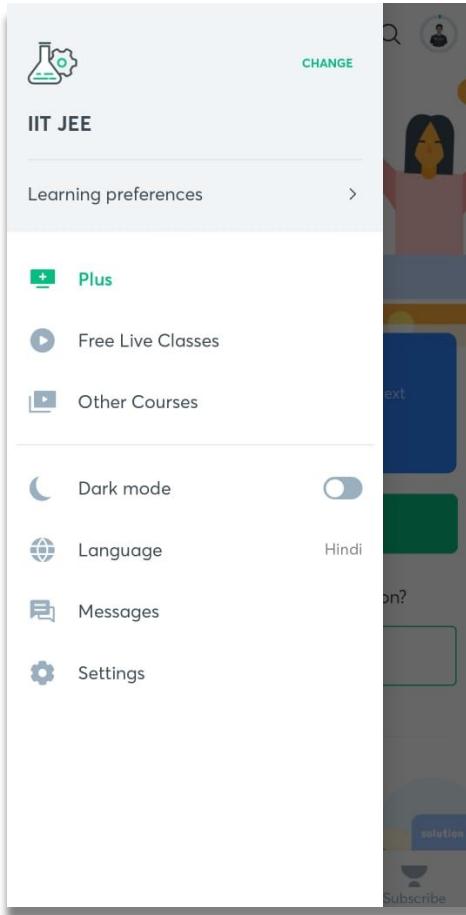
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Legend 3.0 Batch : JEE Main & Advanced 2022

Starts on **19th May 2021**

Emerge Batch (Class 11th) : JEE Main & Advanced 2023

Starts on **20th May 2021**

Spark 3.0 Batch : JEE Main & Advanced 2023

Started on **26th May 2021**



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