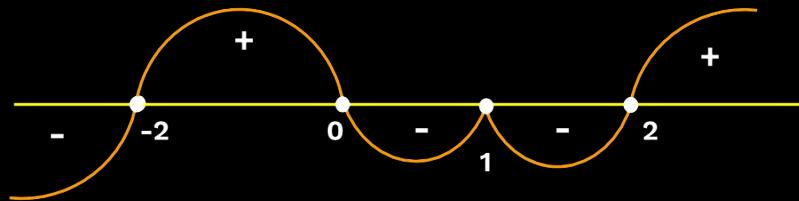


Functions

DPP 1

Wavy Curve Method



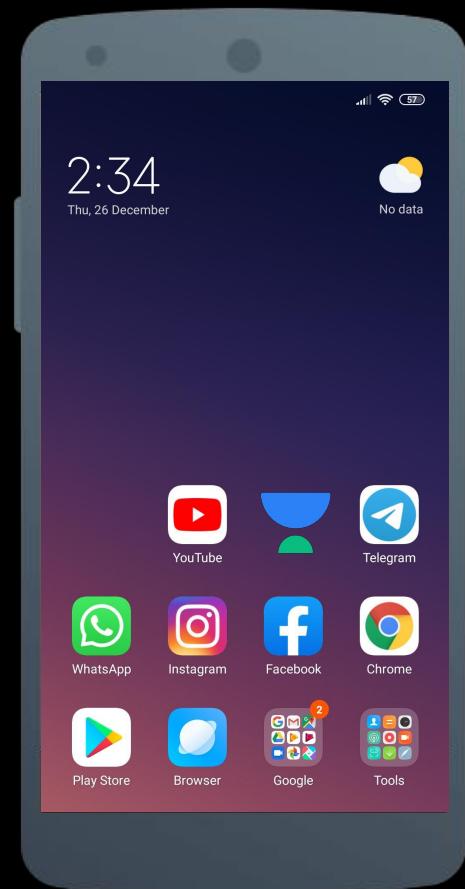


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Sameer Chincholikar
B.Tech, M.Tech - IIT-Roorkee

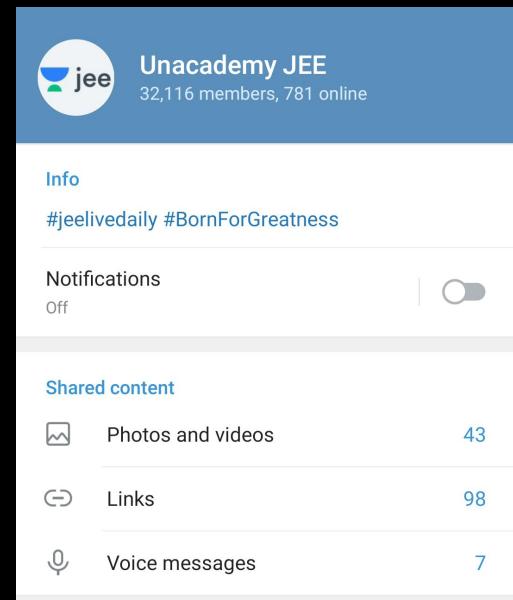


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The screenshot shows a Telegram group info page for "Unacademy JEE". The group has 32,116 members with 781 online. The "Info" section includes the group name and a hashtag "#jeelivedaily #BornForGreatness". The "Notifications" section shows "Off" with a toggle switch. The "Shared content" section displays statistics for photos and videos (43), links (98), and voice messages (7).

Category	Count
Photos and videos	43
Links	98
Voice messages	7

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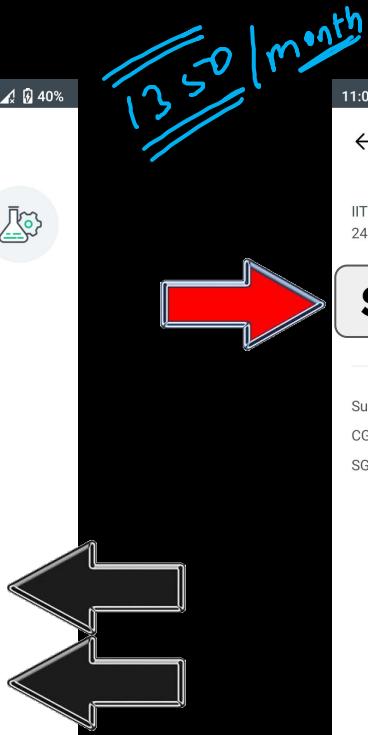
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Which one of the following is true?

$$\begin{array}{c} + \quad - \quad + \\ \hline -2 \quad 3 \quad 1/2 \end{array}$$

5

- A. The solution set to $(2x - 3)(x + 2) < 0$ is $(-\infty, -2) \cup (1.5, \infty)$ ✗
- B. Every quadratic contains at least one real number in its solution set. ✗
- C. The solution set to $\frac{x-3}{(x+4)^2} > 0$ is $(3, \infty)$ → 
- D. None of these statements is true.

$$x^2 + 1 < 0$$



Solve for 'x': $\frac{x^2(x+1)^{10}(x-2)^4}{(x+4)^7(x+7)^5(x-5)^3} \leq 0$

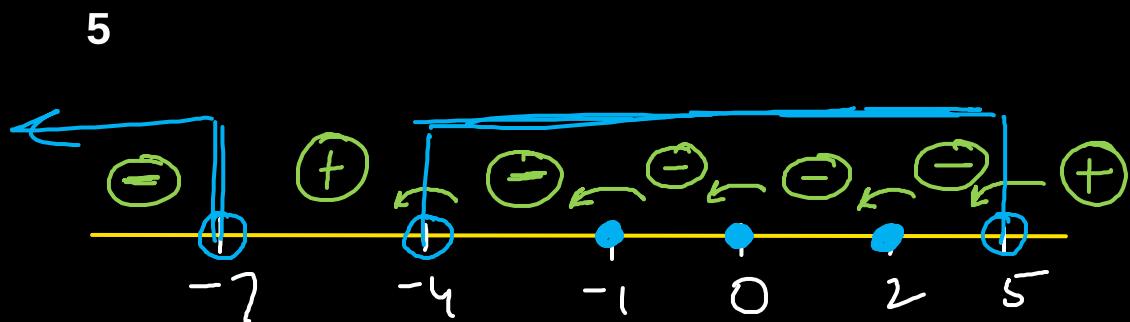
> 0

A. $x \in (-7, -4) \cup (5, \infty)$

B. $x \in (-\infty, -7) \cup (-4, 5)$

C. $x \in (-\infty, -4) \cup (5, \infty)$

D. None of these



$$\boxed{\begin{aligned} & (-7, -4) \\ & \cup (5, \infty) \\ & \cup \{-1, 0, 2\} \end{aligned}}$$

$x \in (-\infty, -7) \cup (-4, 5)$

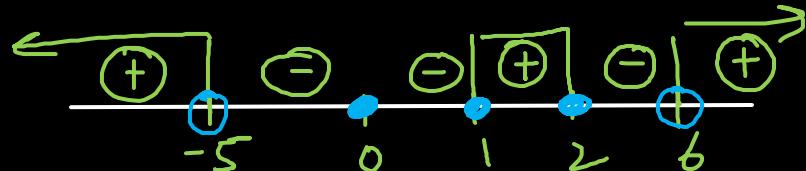


The complete solution set of the inequality $\frac{x^4 - 3x^3 + 2x^2}{x^2 - x - 30} \geq 0$ is:

- A. $(-\infty, -5) \cup (1, 2) \cup (6, \infty) \cup \{0\}$ ✓
B. $(-\infty, -5) \cup [1, 2] \cup (6, \infty) \cup \{0\}$
C. $(-\infty, -5] \cup [1, 2] \cup [6, \infty) \cup \{0\}$ ✗
D. None of these

5

$$\frac{x^2(x^2 - 3x + 2)}{(x^2 - x - 30)} \geq 0$$



$$\frac{(x)^2 (x-1)(x-2)}{(x-6)(x+5)} \geq 0$$



The solution of the inequality

$$\frac{(e^x - 1)(2x - 3)(x^2 + x + 2)}{(\sin x - 2)x(x+1)} \leq 0$$

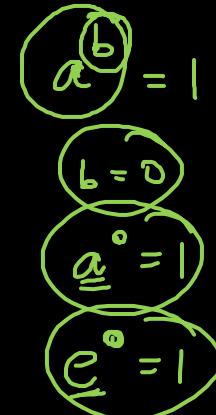
+ ✓

B. $(-\infty, -1) \cup \left[\frac{3}{2}, \infty\right)$

5

- A. $\left[\frac{3}{2}, \infty\right)$
- C. $(-1, 0) \cup \left[\frac{3}{2}, \infty\right)$

- D. $\mathbb{R} - \{0, -1\}$



① $(e^x - 1) \rightarrow n = \infty$ ✓

③ $(\sin x - 2) \rightarrow \underline{\text{always } -ve}$

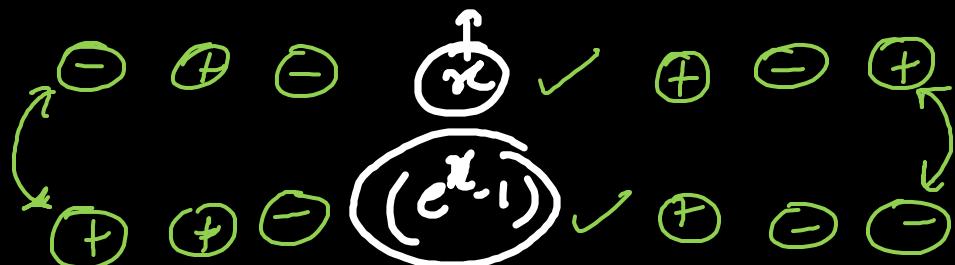
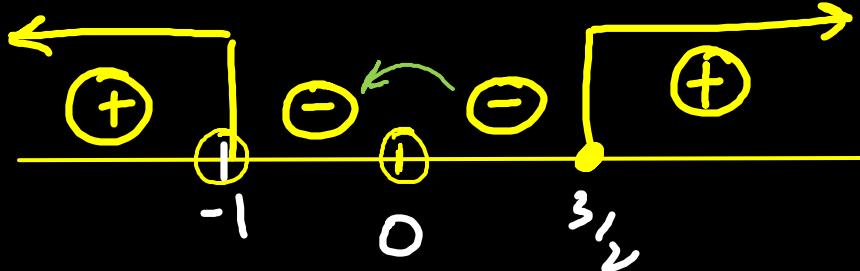
② $(x^2 + x + 2) \rightarrow (x + \frac{1}{2})^2 - \frac{1}{4} + 2$

$(x + \frac{1}{2})^2 + \frac{7}{4}$ always +ve

- ✓ + ✓

$$\frac{\checkmark (e^{\alpha-1}) (2\alpha-3)}{\checkmark \underline{(\alpha)} (\alpha+1)} \geq 0$$

$$\frac{(n+1) \overset{2}{\cancel{(n)}}}{(n+1)(n+1)}$$



Number of non-negative integral values of x satisfying the inequality

$$\frac{2}{(x^2 - x + 1)} - \frac{1}{(x+1)} - \frac{2x-1}{x^3 + 1} \geq 0 \text{ is}$$

A. 0

B. 1

C. 2

D. 3

5

$$\frac{2-x^2+x}{x^3+1} \geq 0$$

$$\frac{2x+2 - x^2 + x - 1}{(x^2 - x + 1)(x+1)} - \frac{2x-1}{(x^3+1)} \geq 0$$

$$\frac{2x+2 - x^2 + x - 1 - 2x+1}{(x^3+1)} \geq 0$$

$$\frac{x^2 - x - 2}{(x+1)(x^2 - x + 1)} \leq 0$$

$$x - 2 \leq 0$$



$$\boxed{x \in \{0, 1, 2\}}$$

non-negative

$$\frac{(x-2) \cancel{(x+1)}}{\cancel{(x+1)} \cancel{(x^2 - x + 1)}} \leq 0$$

\uparrow
always +ve
 $D < 0$





Solve for 'x': $\frac{(x^2 - 3x + 2)(x^2 + 2x + 2)}{(x-3)(x-1-2x^2)} \geq 0$

$(x+1)^2 + 1$ \hookrightarrow always > 0

A. $(-\infty, \infty) - [1, 2]$

B. $(-\infty, 1] \cup [2, 3)$

C. $(-\infty, 2] \cup (3, \infty)$

D. None of these

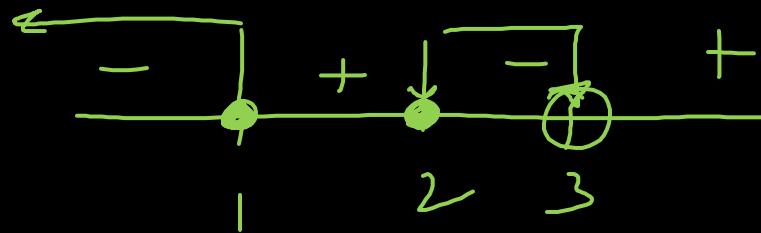
5

$$\frac{(x-1)(x-2)}{(x-3)(2x^2-x+1)} \leq 0$$

$$\left\{ \begin{array}{l} D = b^2 - 4ac \\ < 0 \Rightarrow \\ a > 0; \text{ Quad Exp } > 0 \end{array} \right.$$

$$\begin{aligned} 2x^2 - x + 1 &= 2\left(x^2 - \frac{1}{2}x\right) + 1 && \rightarrow \text{always } > 0 \\ &= 2\left(\left(x - \frac{1}{4}\right)^2 - \frac{1}{16}\right) + 1 && \\ &= 2\left(x - \frac{1}{4}\right)^2 + \left(1 - \frac{1}{8}\right) \end{aligned}$$

$$\frac{(n-1)(n-2)}{(n-3)} \leq 0$$





Solve for 'x': $\frac{x^3 - 2x^2 + 5x + 2}{x^2 + 3x + 2} \geq 1$

5

A. $(-2, -1) \cup [2, \infty)$

B. $(-\infty, -2) \cup (-1, 0) \cup [1, 2]$

C. $(-2, -1] \cup [0, 1] \cup [2, \infty)$

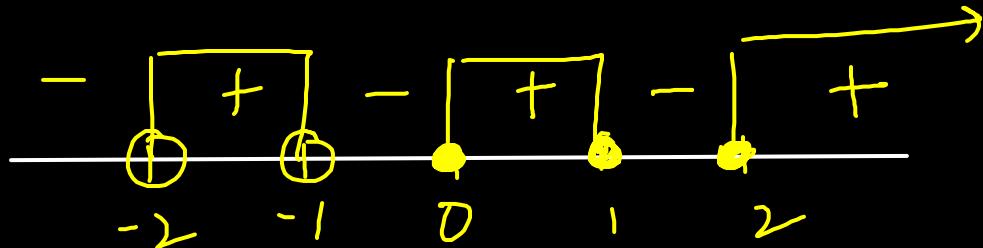
D. None of these

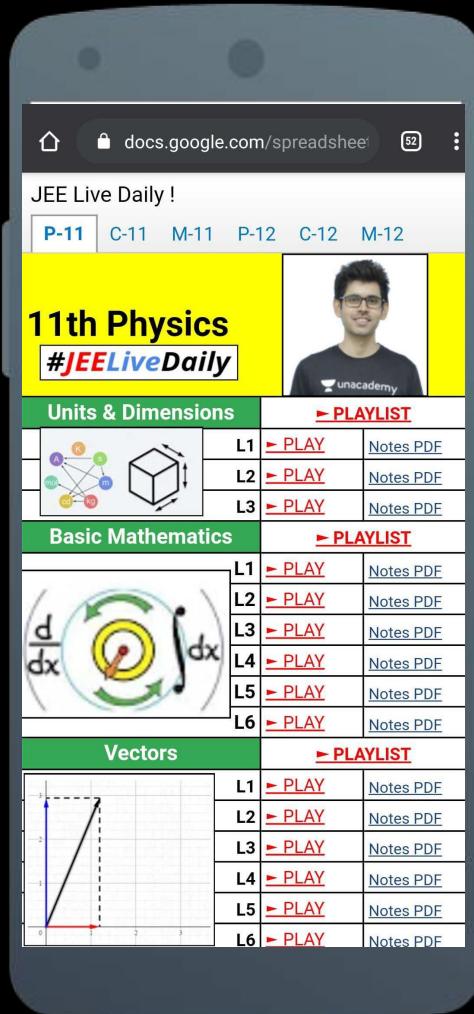
$$\frac{x^3 - 2x^2 + 5x + 2}{x^2 + 3x + 2} - 1 \geq 0 \quad \left\{ \begin{array}{l} \frac{x^3 - 3x^2 + 2x}{x^2 + 3x + 2} \geq 0 \\ \frac{-x^2 - 3x - 2}{x^2 + 3x + 2} \leq 0 \end{array} \right.$$

$$\frac{x^3 - 2x^2 + 5x + 2 - x^2 - 3x - 2}{x^2 + 3x + 2} \geq 0$$

$$\frac{x(x^2 - 3x + 2)}{(x^2 + 3x + 2)} \geq 0$$

$$\frac{x(x-1)(x-2)}{(x+1)(x+2)} > 0$$





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A screenshot of a Unacademy live session. At the top right is a video feed of a male educator named Rohit Sachan. To his left is a sidebar showing user profiles and activity: "Chaudhuri nitration", "Rohit Sachan Sir Baa rha mera", "Sinchan Dutta Chaudhuri right", "Shoib Alam Left", "Vsvsgsg Right", and "Prashant Singh joined". Below the video feed is a question from a student named Rohit Sachan asking for help with a chemical reaction. The question asks for the structure of the major product X in the reaction of 4-nitrophenylhydrazine with $\text{HNO}_3 / \text{H}_2\text{SO}_4$. Three chemical structures are shown: the starting material (4-nitrophenylhydrazine), a possible intermediate, and the final product X. Handwritten annotations show arrows indicating electron movement from the phenyl ring to the nitrogen atom, and another arrow from the nitrogen atom to the oxygen of a nearby group. A handwritten note says "e⁻ deficient" next to the second structure. Below the question is a disclaimer: "Disclaimer: The content is provided by the Learner and is reproduced by Unacademy. Unacademy disclaims any and all liability with regards to the Content."

A screenshot of a test series analysis page. At the top, there are buttons for "View solutions" and "Share your results". Below that, tabs for "Overview", "Physics", "Chemistry", and "Mathematics" are visible. The "Physics" section shows a bar chart with two bars: one red and one green. Below the chart are the statistics: "Score 88/120" and "Accuracy 73%". A note at the bottom left says "NEGATIVE MARKING". At the bottom right, it says "YOU MISSED 0". In the top right corner, there is a progress bar with a green segment labeled "68 correct" and an orange segment labeled "2 unattempted".



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D C Pandey

Question

ROHIT SACHAN:
Sir please solve the one more doubt...

16. In the following reaction, NO_2^+ attacks on e^- rich system.

NO_2^+ → attacks on e^- rich system

$\text{HNO}_3 / \text{H}_2\text{SO}_4$

Sirchana Dutta Chaudhuri nitration

Rohit Sachan Sir B aa rha mera

Sirchana Dutta Chaudhuri right

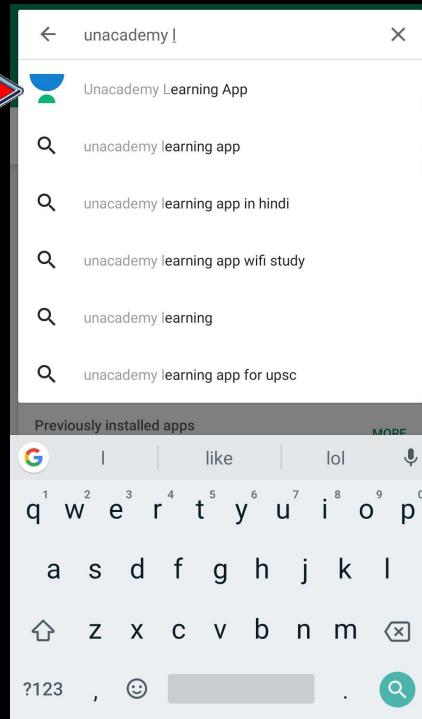
Shoaib Alam Left

Vsvsgsg Right

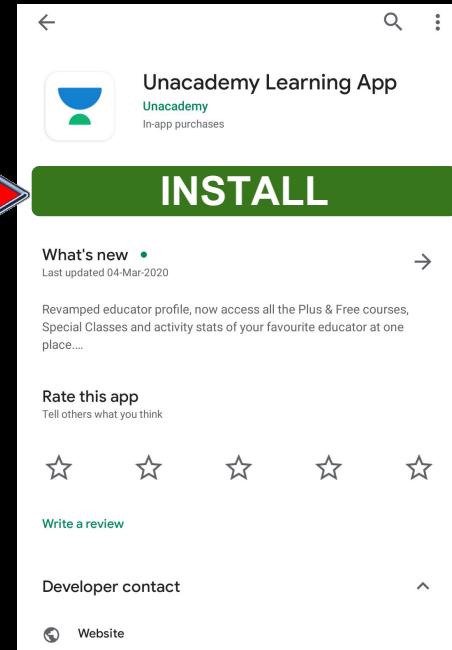
Prashant Singh joined

Rohit Sachan Left

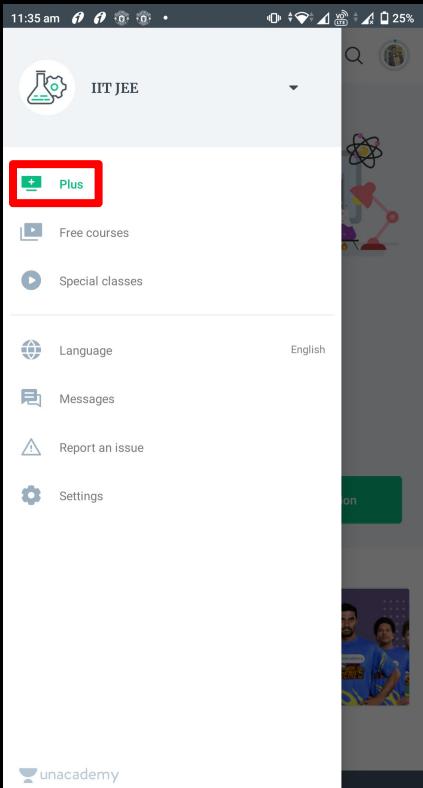
Step 1



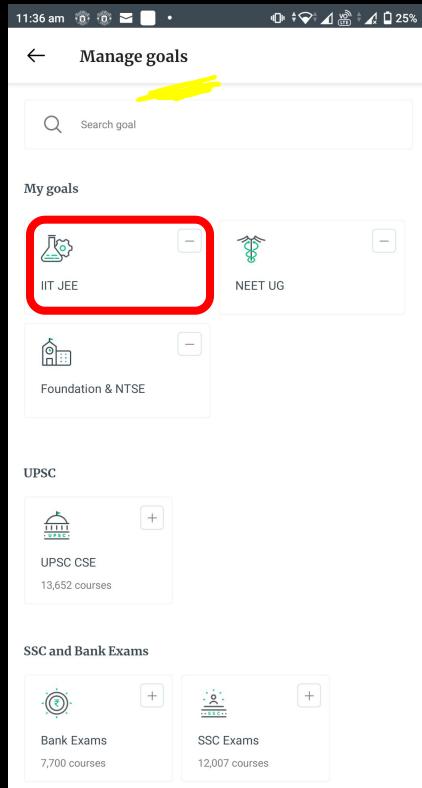
Step 2



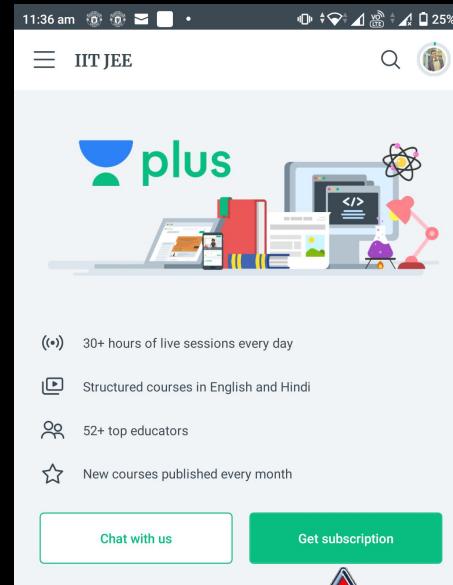
Step 3



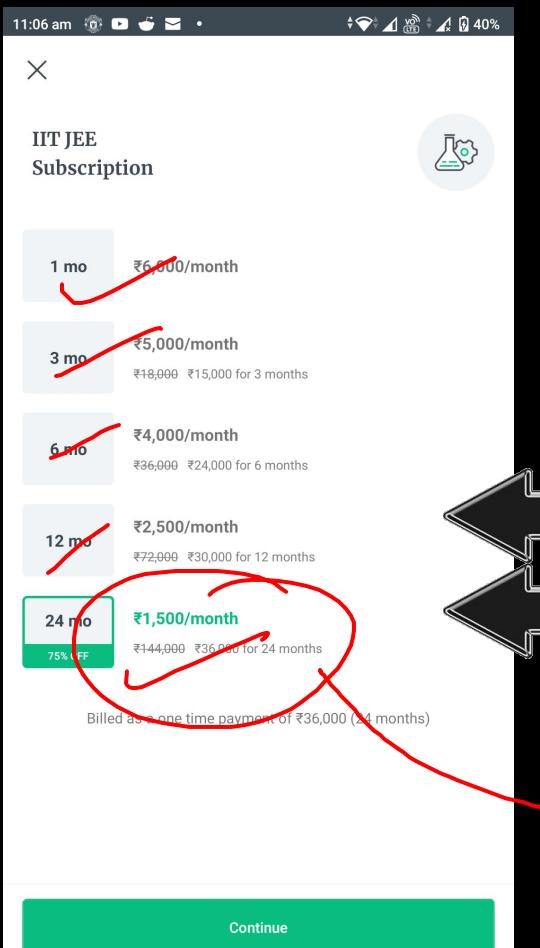
Step 4



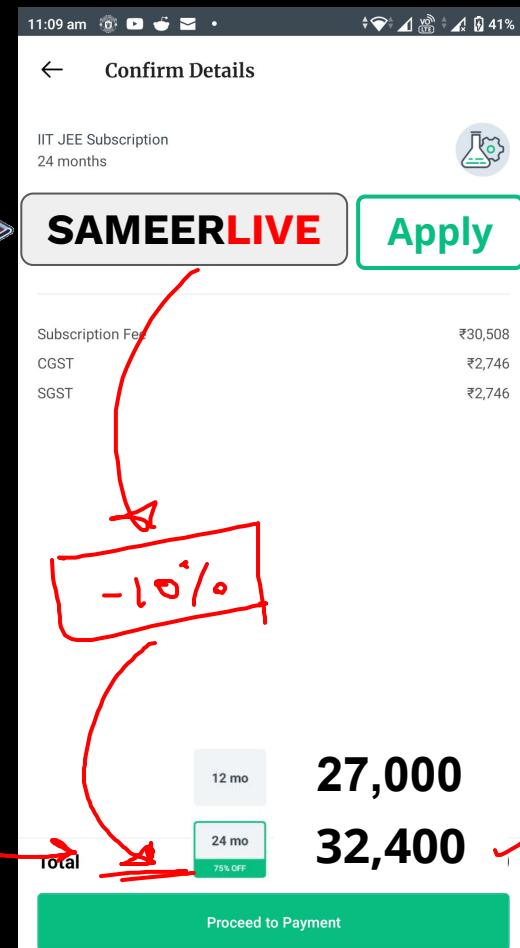
Step 5



Step 6

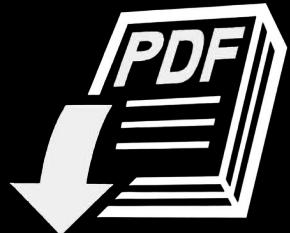


Step 7





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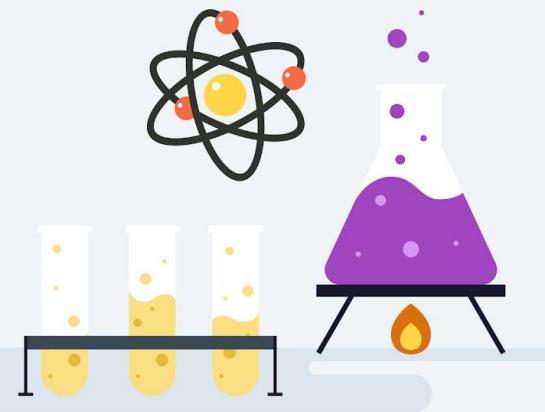
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