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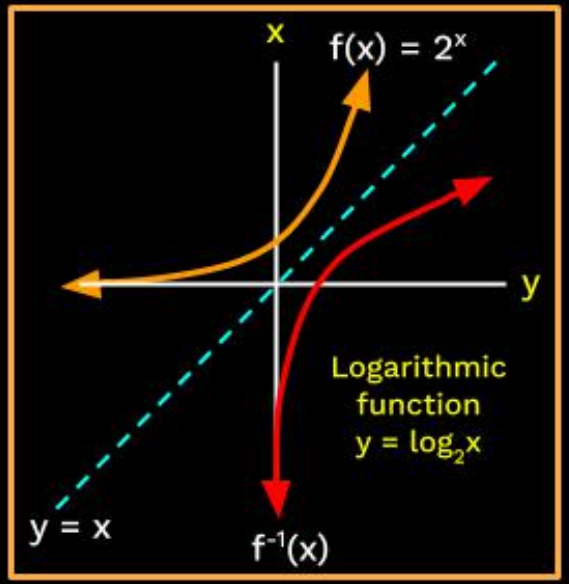
Functions

DPP 5

Logarithmic Function - 1



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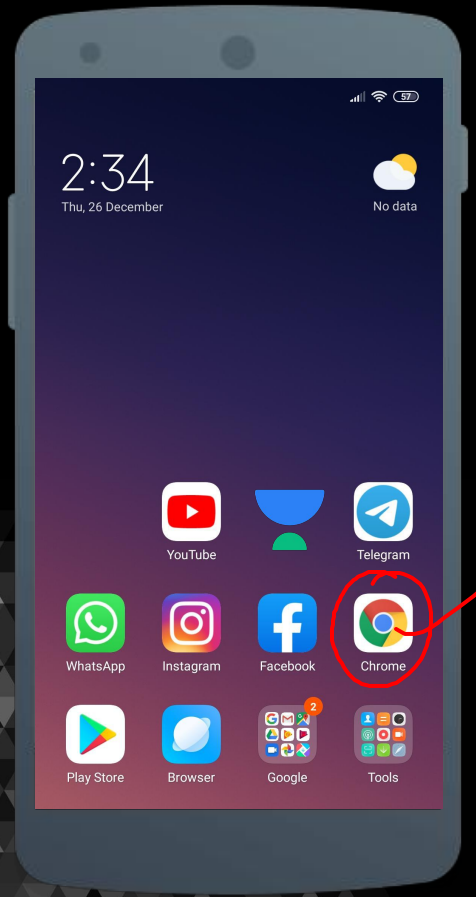

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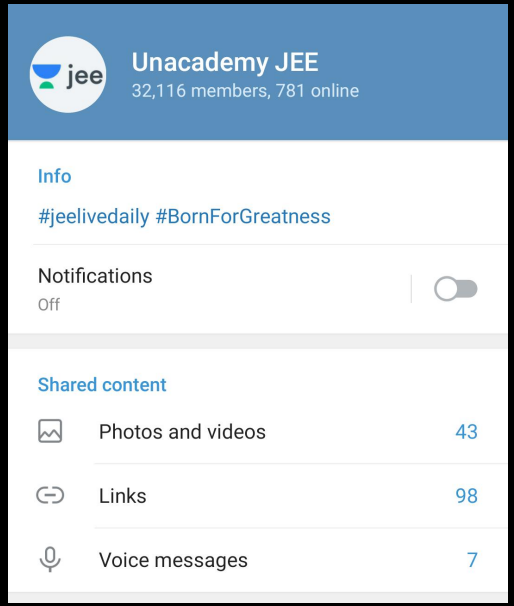

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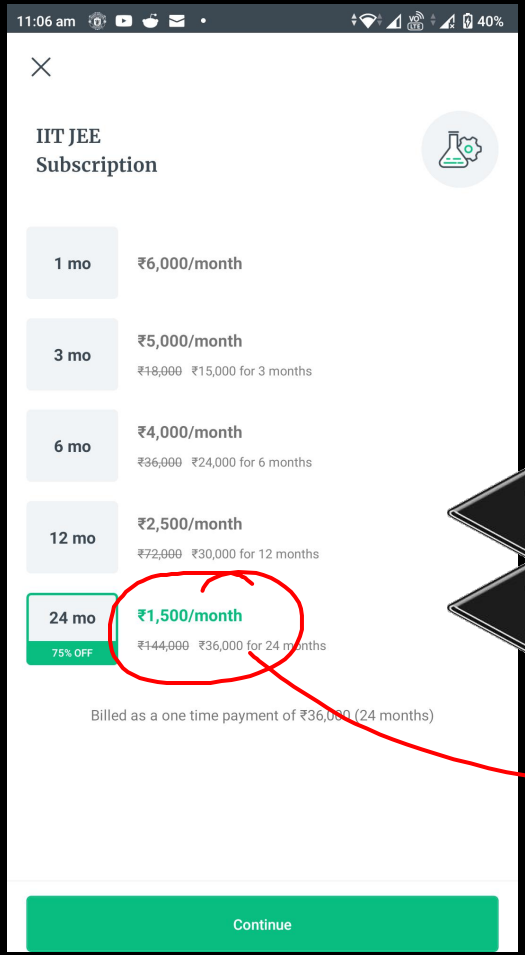

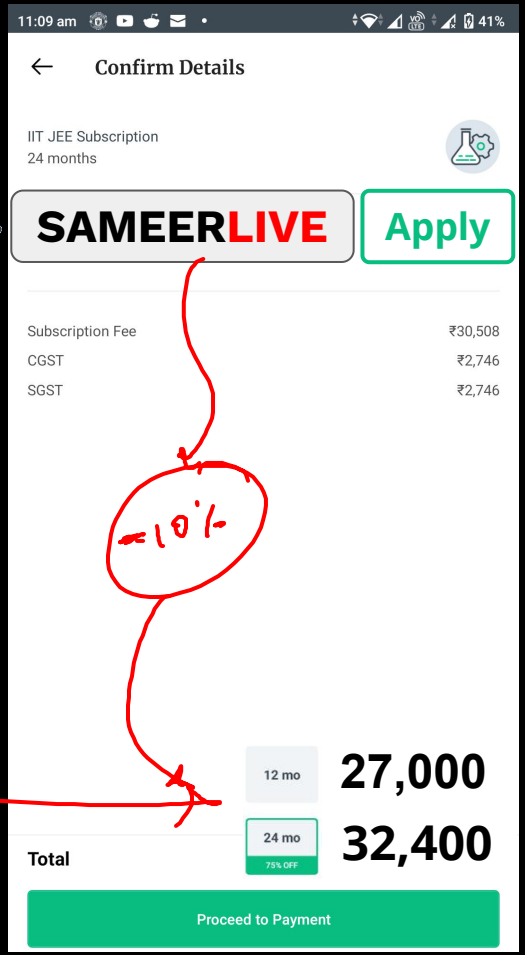

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Functions

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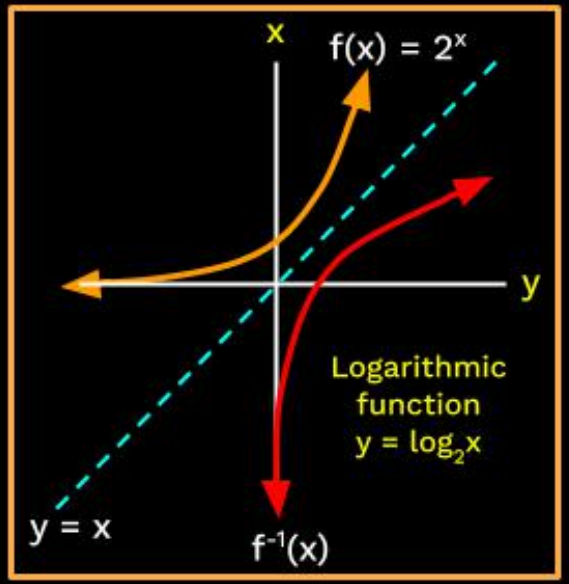
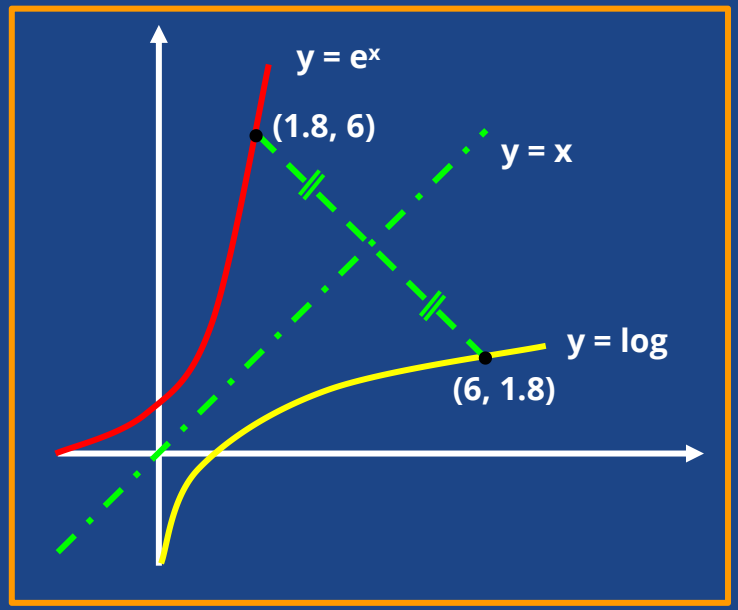


Homework Question



Example

Find the domain of $f(x) = \sqrt{\log_{\frac{1}{4}} \log_{\frac{1}{3}} \log_{\frac{1}{2}} x}$

$\log_{\frac{1}{4}} \log_{\frac{1}{3}} \log_{\frac{1}{2}} x \geq 0$

$0 < \log_{\frac{1}{3}} \log_{\frac{1}{2}} x \leq \left(\frac{1}{4}\right)^0$

$1 > \log_{\frac{1}{2}} x \geq \frac{1}{3}$

$\left(\frac{1}{2}\right)^1 < x \leq \left(\frac{1}{2}\right)^{1/3}$

$x \in \left(\frac{1}{2}, \left(\frac{1}{2}\right)^{1/3}\right]$

The value of following expression is:

$$\frac{1}{1+\log_a b+\log_a c}+\frac{1}{1+\log_b c+\log_b a}+\frac{1}{1+\log_c a+\log_c b}$$

A. abc

B. $\frac{1}{a}+\frac{1}{b}+\frac{1}{c}$

C. 1

D. -1

$$\frac{1}{\log_a(abc)}+\frac{1}{\log_b(abc)}+\frac{1}{\log_c(abc)}$$

$$=\log_{abc}(a)+\log_{abc}(b)+\log_{abc}(c)$$

$\log_{abc}(a \cdot b \cdot c) = 1$

5

If $\frac{\log_{10} a}{b-c} = \frac{\log_{10} b}{c-a} = \frac{\log_{10} c}{a-b}$ then find the value of $a^a\, b^b\, c^c$

$= K$

A. abc

B. $\frac{1}{a}+\frac{1}{b}+\frac{1}{c}$

C. 1

D. -1

$\frac{\log_{10} a}{(b-c)} = K$

$\log_{10} a = K(b-c)$

$a = 10^{K(b-c)}$

$a^a = 10^{K(ab-ac)}$

$b^b = 10^{K(bc-ba)}$

$c^c = 10^{K(ca-cb)}$

$a^a \cdot b^b \cdot c^c = 10^{K(0)}$

$= 1$

If **x, y, z** are different &

$$\frac{(\log x)^2}{(\log y)(\log z)} + \frac{(\log y)^2}{(\log z)(\log x)} + \frac{(\log z)^2}{(\log x)(\log y)} = 3$$

Then **x.y.z** is equal to:

5

Let: $\log x = a$; $\log y = b$; $\log z = c$

$$\frac{a^2}{bc} + \frac{b^2}{ca} + \frac{c^2}{ab} = 3$$

$a^3 + b^3 + c^3 = 3abc$

$$\frac{a^3 + b^3 + c^3}{(abc)} = 3$$

$\Rightarrow \quad a+b+c=0$

$\Rightarrow \quad \log x+\log y+\log z=0$

$\Rightarrow \quad \log_{10}(xyz)=0$

$\Rightarrow \quad \boxed{xyz=1}$

If $\log_{20}2 = a$ and $\log_{20}5 = b$

Then the value of the $\log_{20}8$ in terms of 'a' and 'b' is:

A. $3(1 - a - b)$ **B.** $3(1 + a + b)$ **C.** $3(a + b - 1)$ **D.** None

$$\log_{20}8$$

$$= 3\log_{20}2$$

$$= 3\log_{20}\left(\frac{20}{10}\right)$$

$$= 3(\log_{20}20 - \log_{20}10)$$

$$= 3(1 - (\log_{20}2 + \log_{20}5))$$

$$= 3(1 - a - b)$$

5

The number of solutions of the equation $x^{\log_x (x+3)^2} = 16$ is/are

A. 3 B. 2 C. 1 D. Nil

$a^{\log_a N} = N$

Domain: $x > 0$, $x \neq 1$

$\Rightarrow (x+3)^2 = 16$

$x + 3 = \pm 4$

$x = -7, 1$ (✗, ✗)

If $\log_2 x + \log_x 2 = \frac{10}{3} = \log_2 y + \log_y 2$ and $x \neq y$, then $x + y$ is equal to

A. 2 **B.** 65/8 **C.** 37/6 **D.** None of these

H.W.

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11th Physics

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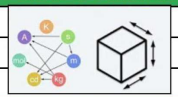	L1	► PLAY	Notes PDF
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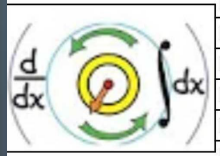	L1	► PLAY	Notes PDF
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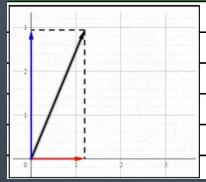	L1	► PLAY	Notes PDF
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8 PM Paaras Sir Chemistry

9 PM Sameer Sir Maths

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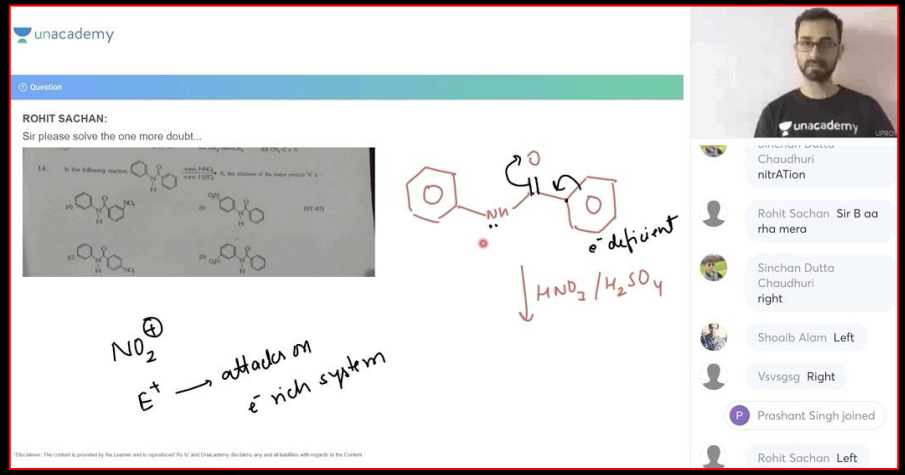

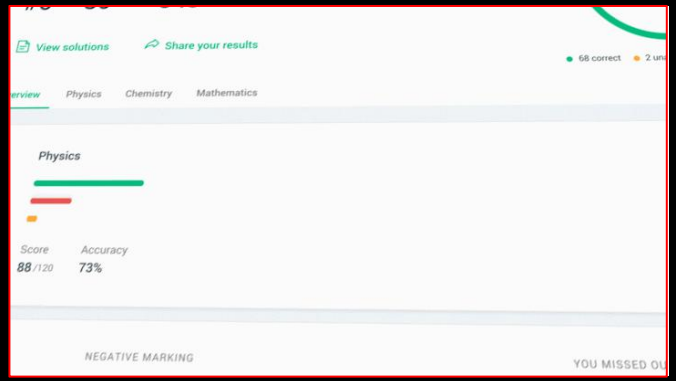

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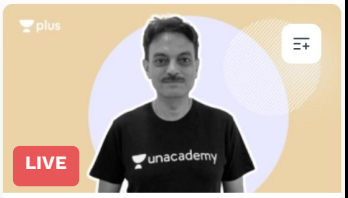

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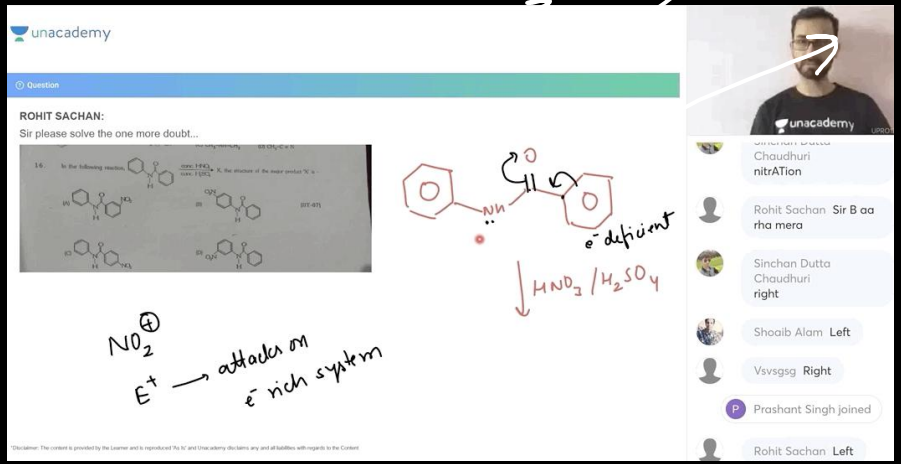

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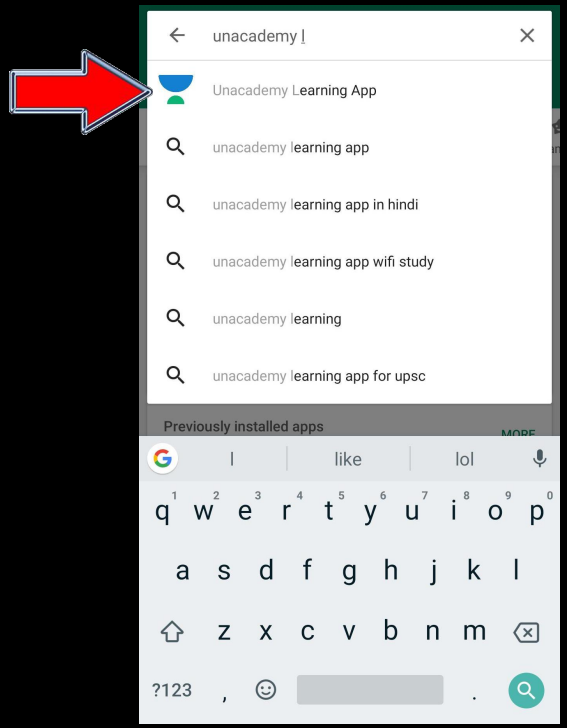
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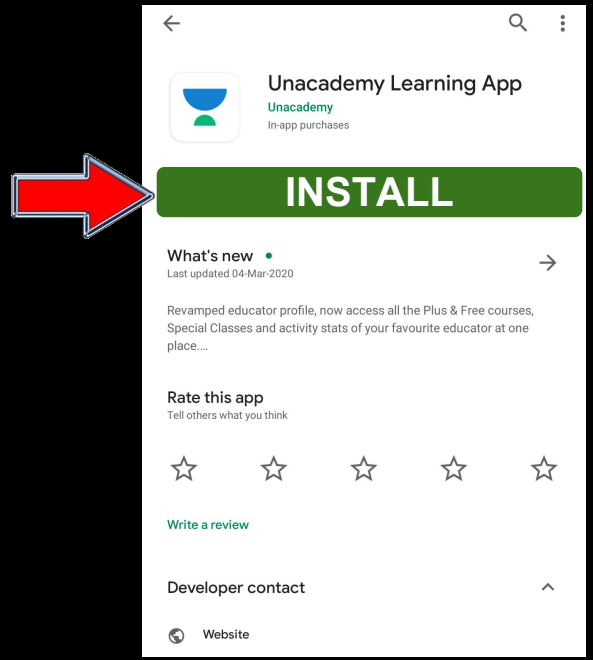
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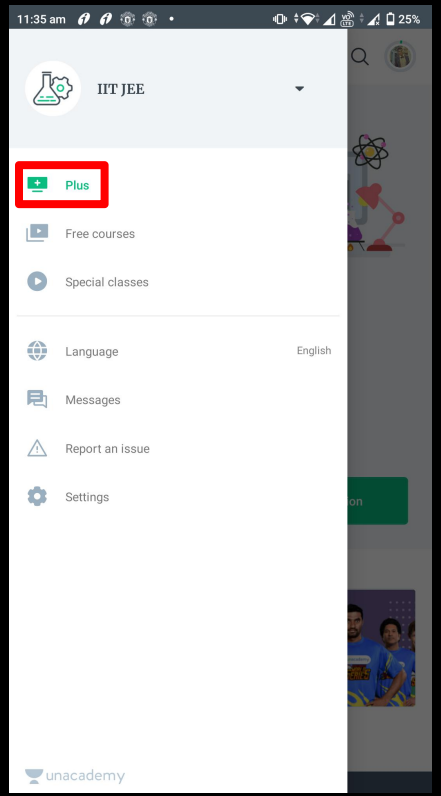

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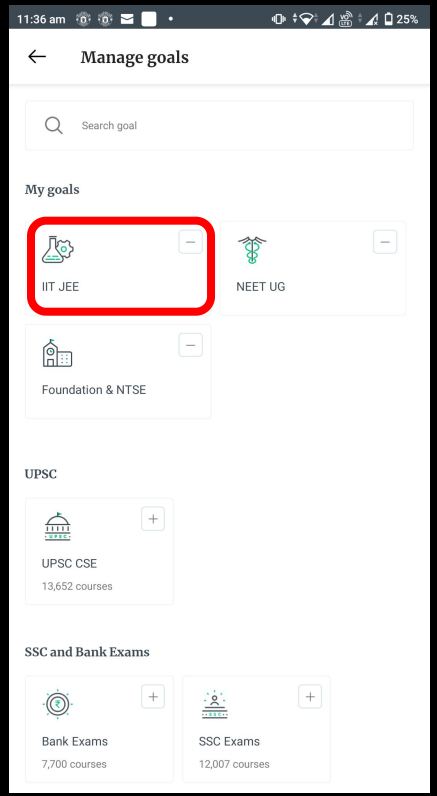

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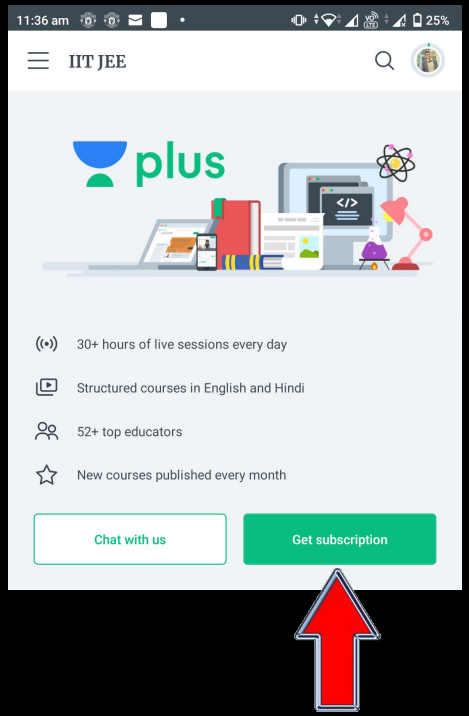

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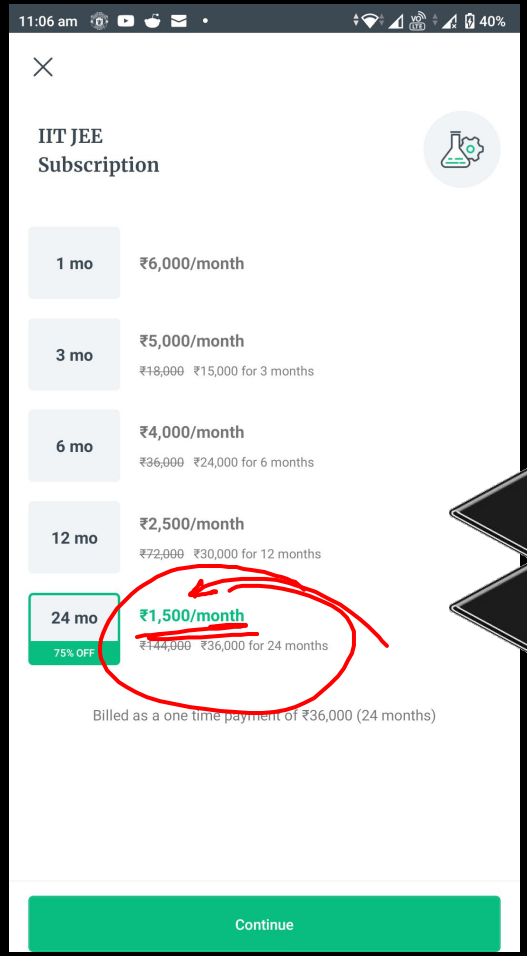
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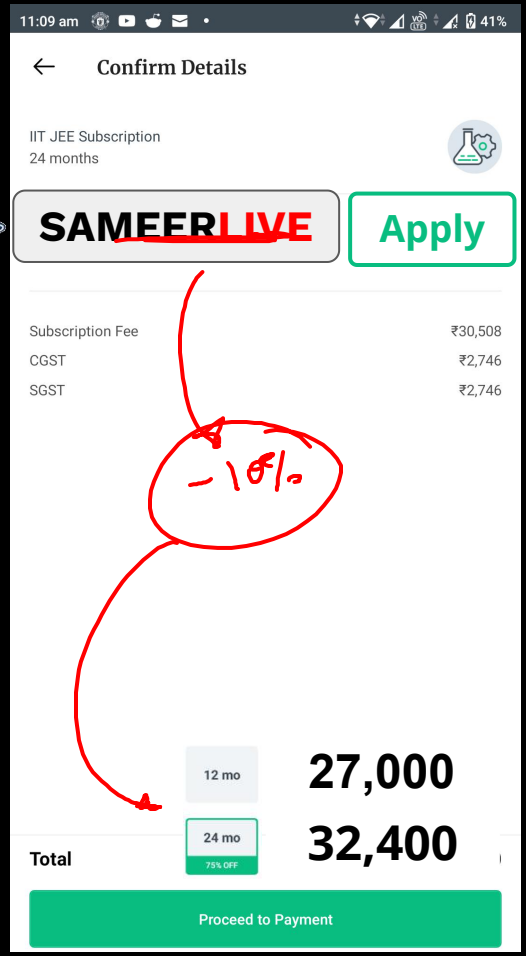
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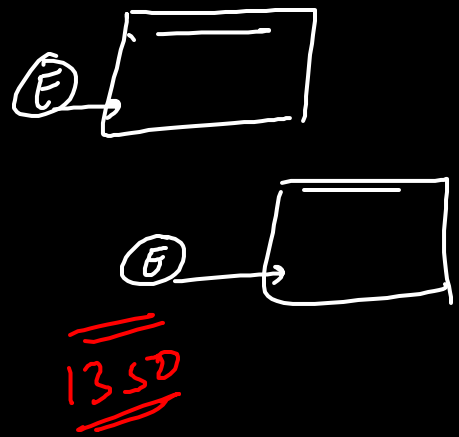
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