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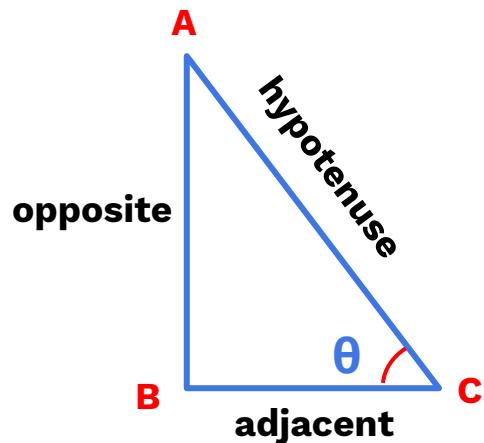


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Trigonometry

JPP

1



Sameer Chincholikar



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- ✓ Taught **1 Million+** Students
- ✓ **100+** Aspiring Teachers Mentored



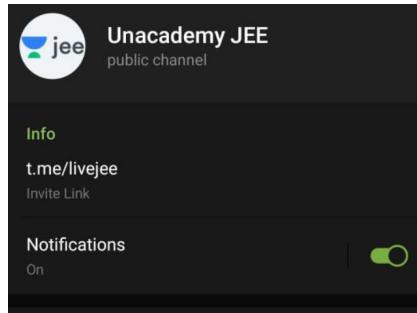
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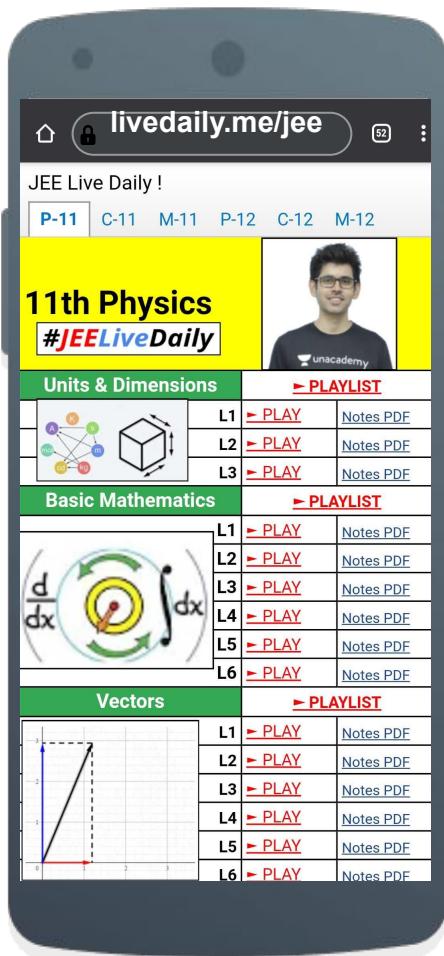
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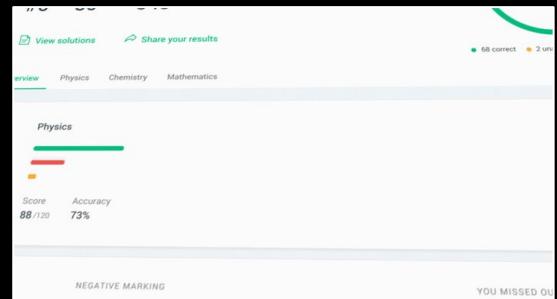
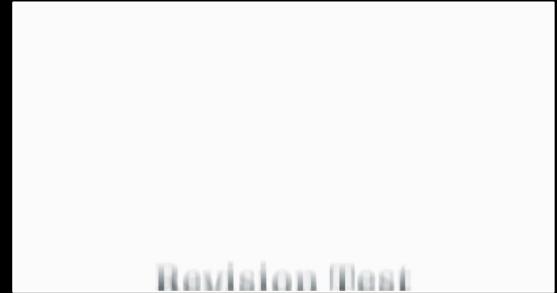
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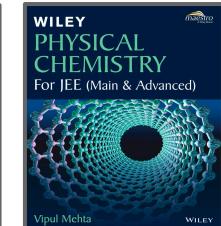
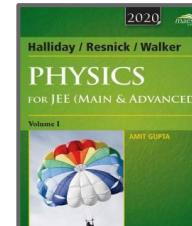
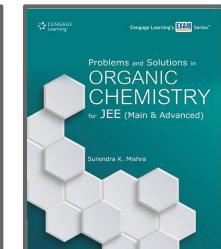
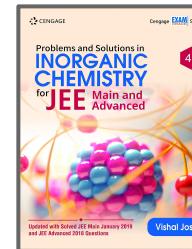
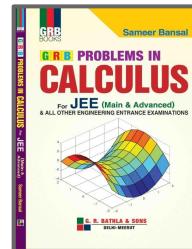
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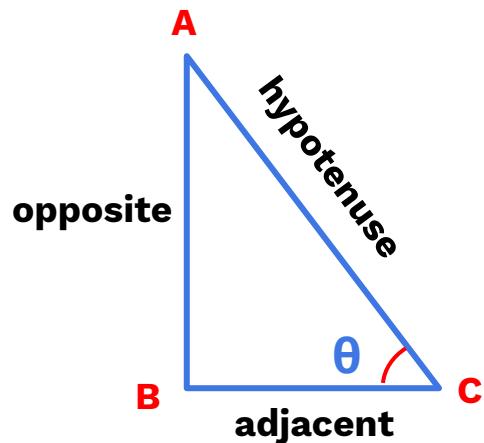


3.0

Trigonometry

JPP

1



Sameer Chincholikar



$$1 - \frac{\sin^3 \theta}{\sin \theta + \cos \theta} - \frac{\cos^3 \theta}{\sin \theta + \cos \theta}$$

is equal to

A. $\sin^2 \theta$

B. $\cos^2 \theta$

C. $\sin \theta \cos \theta$

D. $\sin^2 \theta$



If $\frac{2\sin\alpha}{\{1+\cos\alpha+\sin\alpha\}}=y$, then $\frac{\{1-\cos\alpha+\sin\alpha\}}{1+\sin\alpha}=$

- A. $\frac{1}{y}$ B. y C. $1-y$ D. $1+y$



If $\tan\theta = \sqrt{\frac{a}{b}}$ where a, b are positive real numbers and $\theta \in 1^{\text{st}}$ quadrant then the value of $\sin\theta \sec^7\theta + \cos\theta \operatorname{cosec}^7\theta$ is

A. $\frac{(a+b)^3(a^4+b^4)}{(ab)^{7/2}}$

B. $\frac{(a+b)^3(a^4-b^4)}{(ab)^{7/2}}$

C. $\frac{(a+b)^3(b^4-a^4)}{(ab)^{7/2}}$

D. $-\frac{(a+b)^3(a^4+b^4)}{(ab)^{7/2}}$



If $\sin\theta + \cos\theta = \sqrt{2} \cos\theta$, then $\sin\theta - \cos\theta =$

- A. $\sqrt{2} \sin\theta$
- B. $-\sqrt{2} \sin\theta$
- C. $\sqrt{2} \cos\theta$
- D. 0



If $\sin\theta + \sin^2\theta = 1$, then

Value of $\text{cosec}^2\theta + \sec^2\theta - \cos^2\theta - \cot^2\theta + 1$ is equal to

A. 1

B. 2

C. 3

D. 4



$$\frac{\sin \theta + \cos \theta}{\cos^3 \theta} = p \tan^3 \theta + q \tan^2 \theta + r \tan \theta + s$$

Then the value of $p + q + r + s$ is equal to:

A. 1

B. 2

C. 3

D. 4



If $3\sin\theta + 5\cos\theta = 5$. Then find the value of $(5 \sin \theta - 3 \cos \theta)$

A. 2

B. 3

C. -1

D. None of these



For any $\theta \in \left(\frac{\pi}{4}, \frac{\pi}{2}\right)$ the expression

$$3(\sin\theta - \cos\theta)^4 + 6(\sin\theta + \cos\theta)^2 + 4 \sin^6\theta \text{ equals:}$$

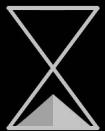
JEE Main 2019

A. $13 - 4\cos^2\theta + 6\sin^2\theta \cos^2\theta$

B. $13 - 4\cos^6\theta$

C. $13 - 4\cos^2\theta + 6\cos^4\theta$

D. $13 - 4\cos^4\theta + 2\sin^2\theta \cos^2\theta$



If $0 \leq x \leq \pi$ & $81^{\sin^2 x} + 81^{\cos^2 x} = 30$, then x can be

A. $\pi/4$

B. $\pi/2$

C. $5\pi/6$

D. $4\pi/3$



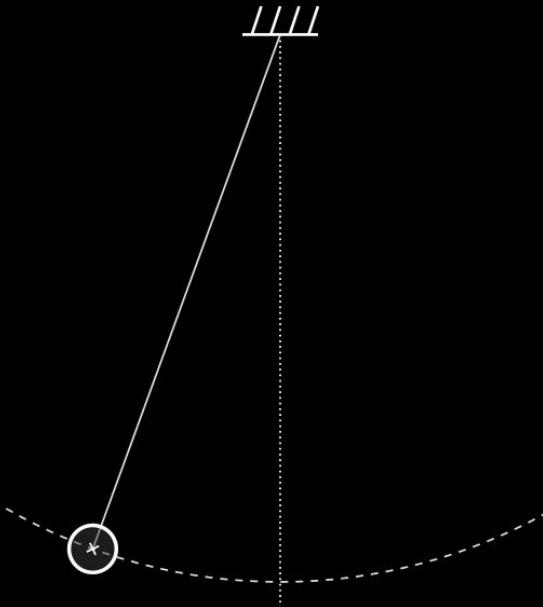
The angle in radian through which a pendulum swings if its **length is 75cm** and tip describes an **arc of length 21 cm**, is

A. $\frac{7}{25}$

B. $\frac{6}{25}$

C. $\frac{8}{25}$

D. $\frac{3}{25}$





The minute hand of a clock is 10 cm long. How far does the tip of the hand move in 20 minutes.

A. $\frac{10\pi}{3}$

B. $\frac{20\pi}{3}$

C. $\frac{30\pi}{3}$

D. $\frac{40\pi}{3}$





The circumference of a circle is divided into **6 parts** such that the **lengths are in A.P.** If the smallest and the largest arcs are in the **ratio 1:5**, then find the angle subtended by the smallest arc..

A. 15^0

B. 20^0

C. 30^0

D. 60^0



Find the value of

$$\frac{\sin(-212^\circ) \cos 302^\circ + \cos^2(-148^\circ)}{\sin(-82^\circ) \cos(-8^\circ) + \sin 368^\circ \sin(-172^\circ)}$$

- A. 0 B. 1 C. $-1/2$ D. -1



The expression

$$3 \left[\sin^4 \left(\frac{3\pi}{2} - \alpha \right) + \sin^4 (3\pi + \alpha) \right] - 2 \left[\sin^6 \left(\frac{\pi}{2} - \alpha \right) + \sin^6 (5\pi - \alpha) \right]$$

is equal to:

A. 0

B. 1

C. 3

D. $\sin 4\alpha + \cos 6\alpha$



If $[1 - \sin(\pi + \alpha) + \cos(\pi + \alpha)]^2 + \left[1 - \sin\left(\frac{3\pi}{2} + \alpha\right) + \cos\left(\frac{3\pi}{2} - \alpha\right)\right]^2 = a + 2b \sin\alpha \cos\alpha$

Find the value of **(a + b)**.



#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



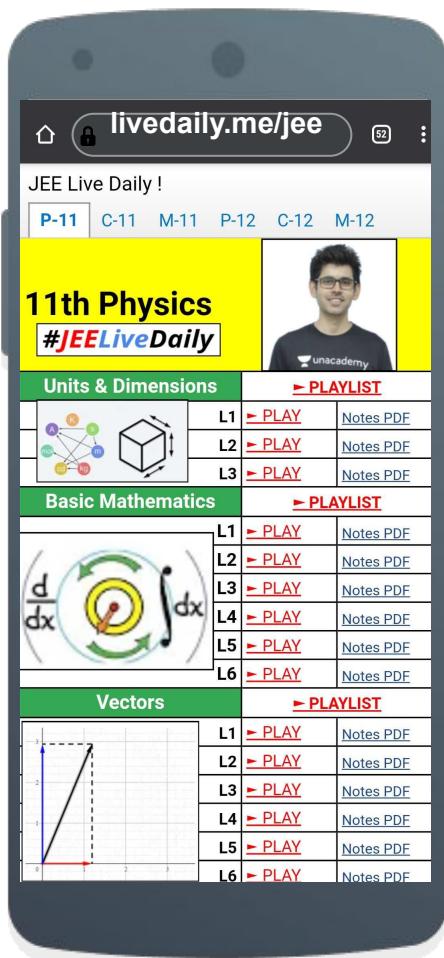
Anupam Sir | Chemistry

3:00 - 4:30 PM



Nishant Sir | Maths

4:30 - 6:00 PM



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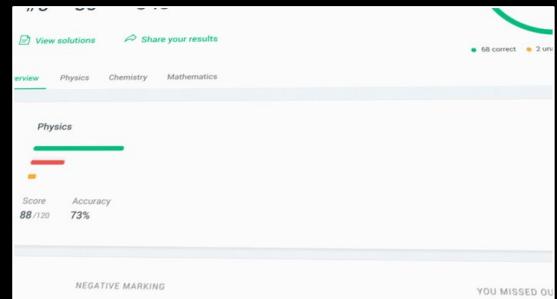
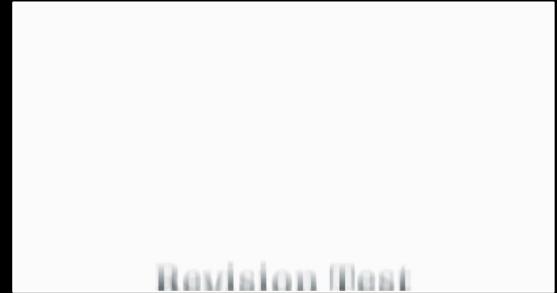
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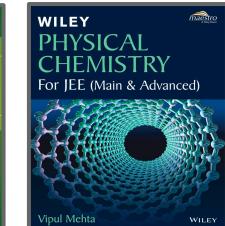
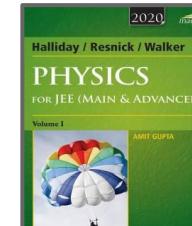
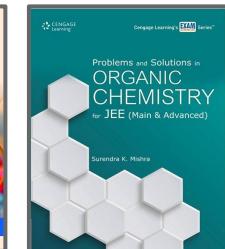
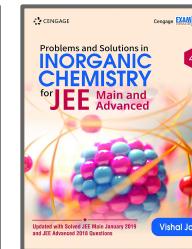
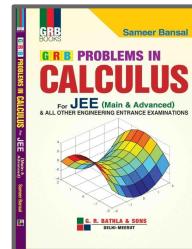
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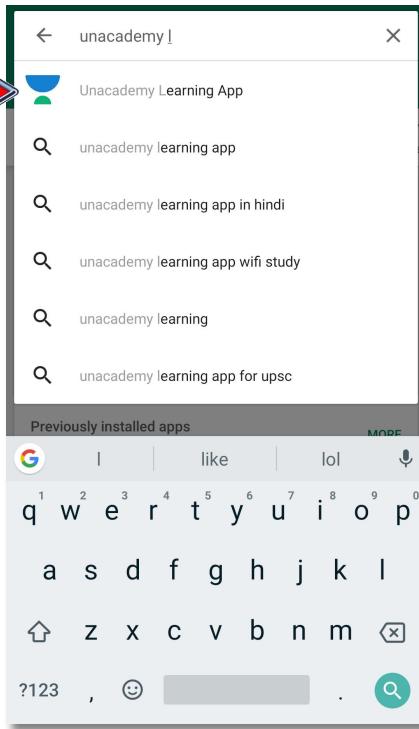


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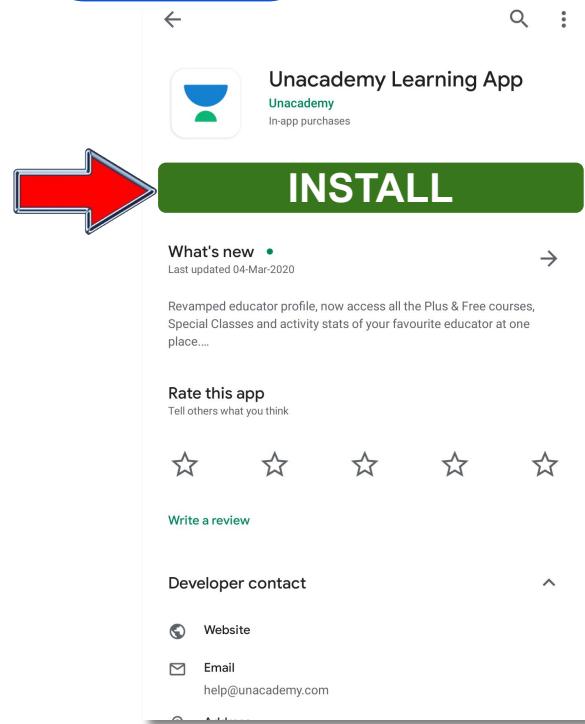


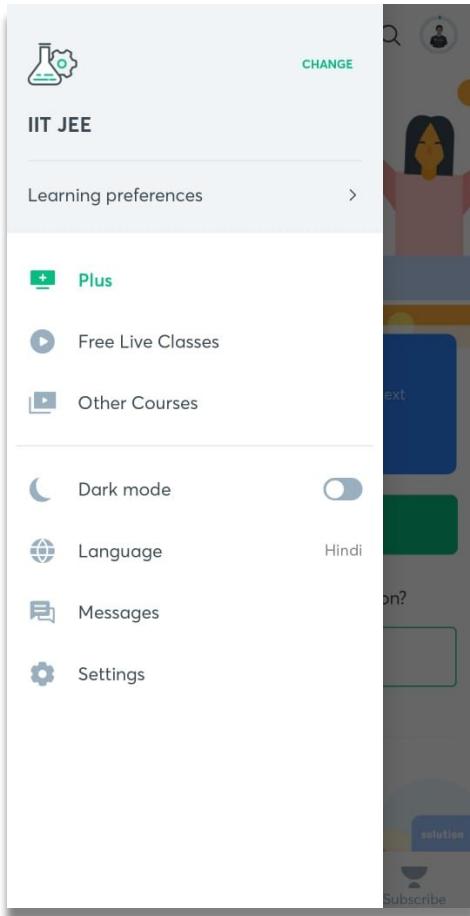
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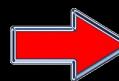
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