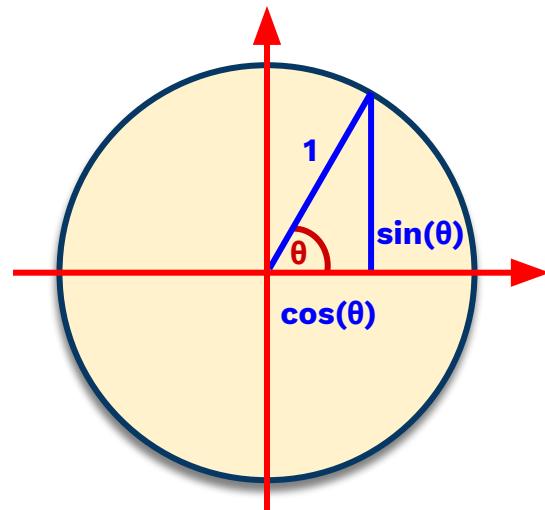


# Trigonometry

JPP

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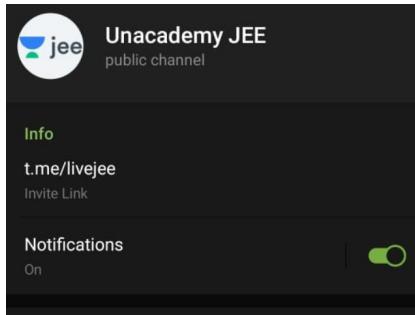
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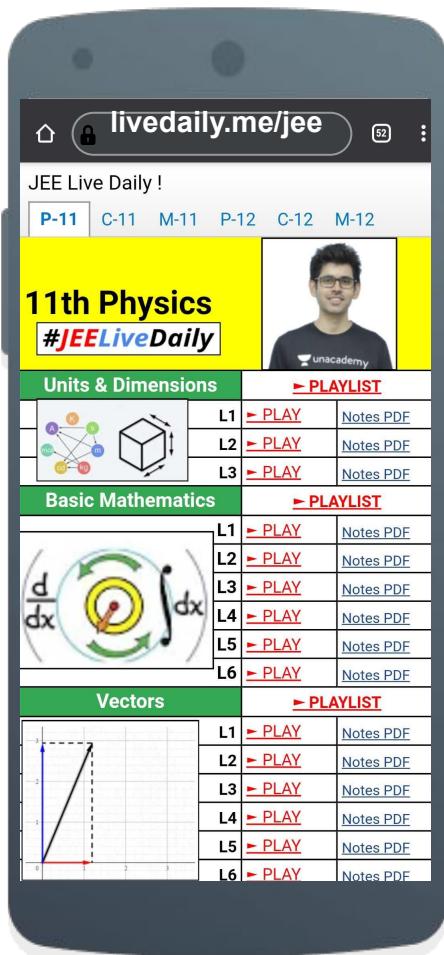
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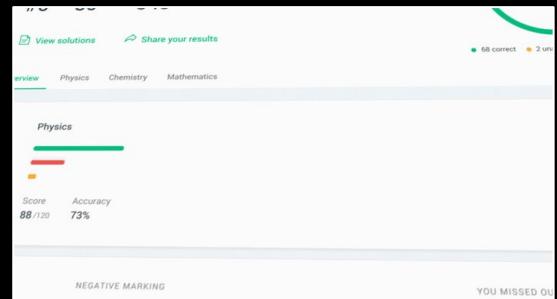
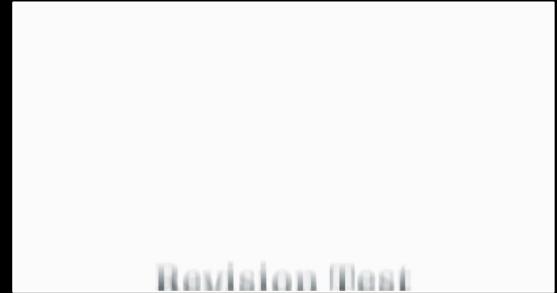
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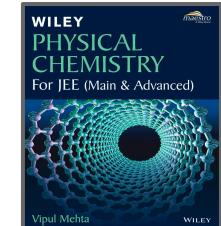
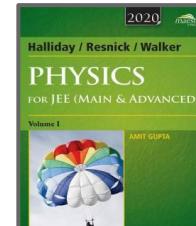
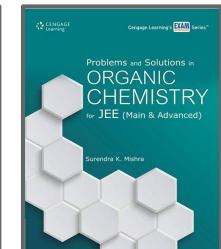
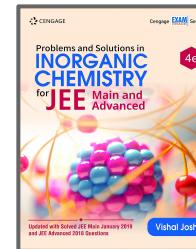
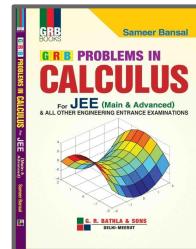
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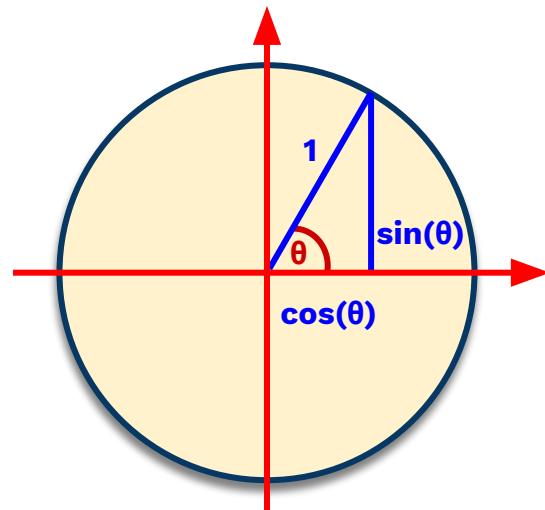
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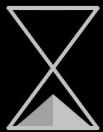
# Trigonometry

JPP

4



Sameer Chincholikar



If  $\frac{\pi}{2} < \alpha < \pi$ , then the expression

$$\sqrt{\frac{1 - \sin \alpha}{1 + \sin \alpha}} + \sqrt{\frac{1 + \sin \alpha}{1 - \sin \alpha}}$$

is equal to

A.  $\frac{2}{\cos \alpha}$

B.  $\frac{-2}{\cos \alpha}$

C.  $\frac{-2}{\cos \alpha}$

D.  $2 \tan \alpha$



If  $0 < \theta < \frac{\pi}{2}$  and  $\sin \theta + \cos \theta + \tan \theta + \cot \theta + \sec \theta + \cosec \theta$  is equal to 7, then  $\sin 2\theta$  is a root of the equation

A.  $x^2 + 44x + 36 = 0$

B.  $x^2 - 44x - 36 = 0$

C.  $x^2 - 44x + 36 = 0$

D.  $x^2 + 44x - 36 = 0$



Let  $\alpha$  and  $\beta$  be non-zero real numbers such that

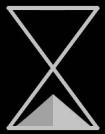
$$2(\cos \beta - \cos \alpha) + \cos \alpha \cos \beta = 1,$$

Then which of the following is/are true ?

JEE Adv. 2017

A.  $\tan\left(\frac{\alpha}{2}\right) + \sqrt{3} \tan\left(\frac{\beta}{2}\right) = 0$       B.  $\sqrt{3} \tan\left(\frac{\alpha}{2}\right) + \tan\left(\frac{\beta}{2}\right) = 0$

C.  $\tan\left(\frac{\alpha}{2}\right) - \sqrt{3} \tan\left(\frac{\beta}{2}\right) = 0$       D.  $\sqrt{3} \tan\left(\frac{\alpha}{2}\right) - \tan\left(\frac{\beta}{2}\right) = 0$



If  $3 \sin\alpha = 5 \sin\beta$ , then  $\frac{\tan \frac{\alpha + \beta}{2}}{\tan \frac{\alpha - \beta}{2}} =$

A. 1

B. 2

C. 3

D. 4



If  $\frac{x}{y} = \frac{\cos A}{\cos B}$  such that  $A \neq B$  and  $0 < A, B < \frac{\pi}{2}$  then  $\frac{x \tan A + y \tan B}{x + y}$  is equal to:

- A.**  $\sin \frac{A+B}{2}$       **B.**  $\sin \frac{A-B}{2}$       **C.**  $\tan \frac{A-B}{2}$       **D.**  $\tan \frac{A+B}{2}$



If  $\sin x + \sin y = \frac{1}{4}$  and  $\cos x + \cos y = \frac{1}{3}$ , then

A.  $\tan\left(\frac{x+y}{2}\right) = \frac{3}{4}$

B.  $\tan\left(\frac{x+y}{2}\right) = \frac{1}{2}$

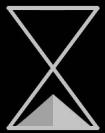
C.  $\cos(x - y) = \frac{263}{288}$

D.  $\cos(x - y) = \frac{-263}{288}$

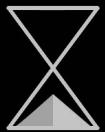


$$\sin 47^\circ + \sin 61^\circ - \sin 11^\circ - \sin 25^\circ =$$

- A.  $\cos 3^\circ$       B.  $\sin 97^\circ$       C.  $\cos 7^\circ$       D.  $\sin 93^\circ$



Find the value of  $\cot 70^\circ + 4 \cdot \cos 70^\circ$



The expression

$$\frac{\cos 6x + 6 \cos 4x + 15 \cos 2x + 10}{\cos 5x + 5 \cos 3x + 10 \cos x}$$

- A.  $\cos 2x$       B.  $2 \cos x$       C.  $\cos^2 x$       D.  $1 + \cos x$



The expression  $\cos^2\phi + \cos^2(a + \phi) - 2 \cos a \cos \phi \cos(a + \phi)$  is independent of

- A.  $\phi$
- B.  $a$
- C. both  $a$  and  $\phi$
- D. none of  $a$  and  $\phi$



If  $K = \sin^3 10^\circ + \sin^3 50^\circ - \sin^3 70^\circ$ , then  $8K =$



If  $A + B + C = 180^\circ$ ,  $\frac{\sin 2A + \sin 2B + \sin 2C}{\sin A + \sin B + \sin C} = k \sin \frac{A}{2} \sin \frac{B}{2} \sin \frac{C}{2}$  then

then value of  $k$  is equal to



# #JEELiveDaily Schedule



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



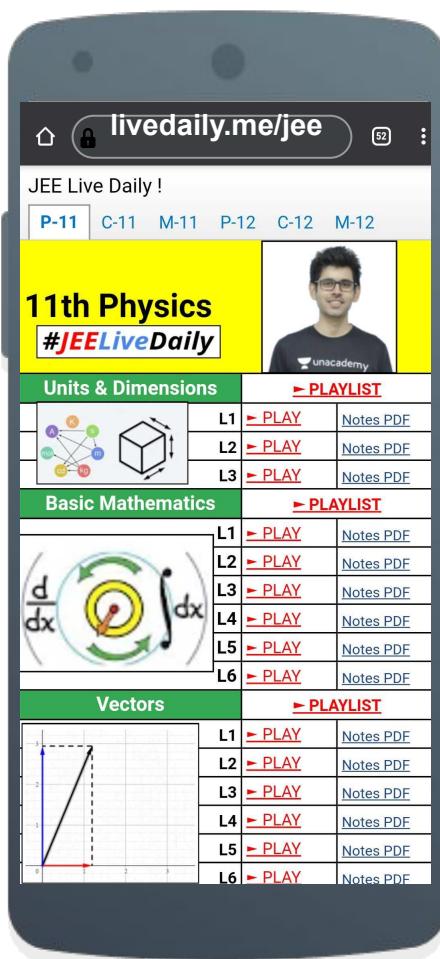
Anupam Sir | Chemistry

3:00 - 4:30 PM



Nishant Sir | Maths

4:30 - 6:00 PM



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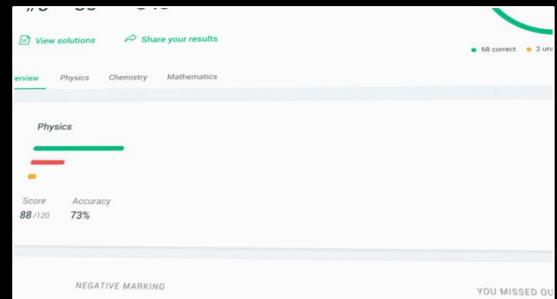
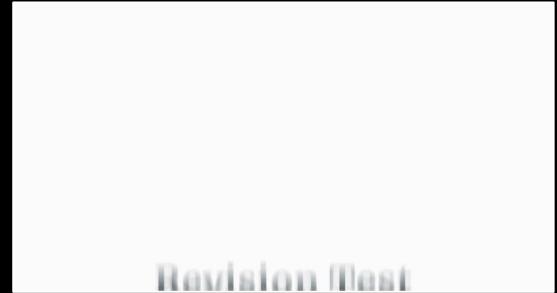
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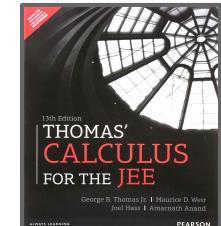
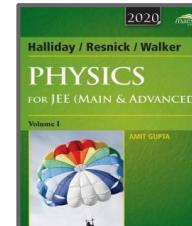
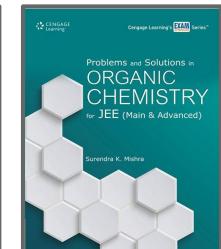
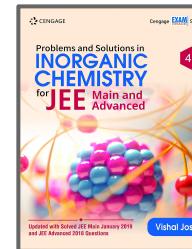
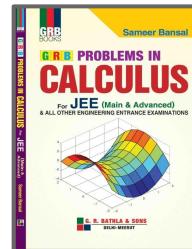
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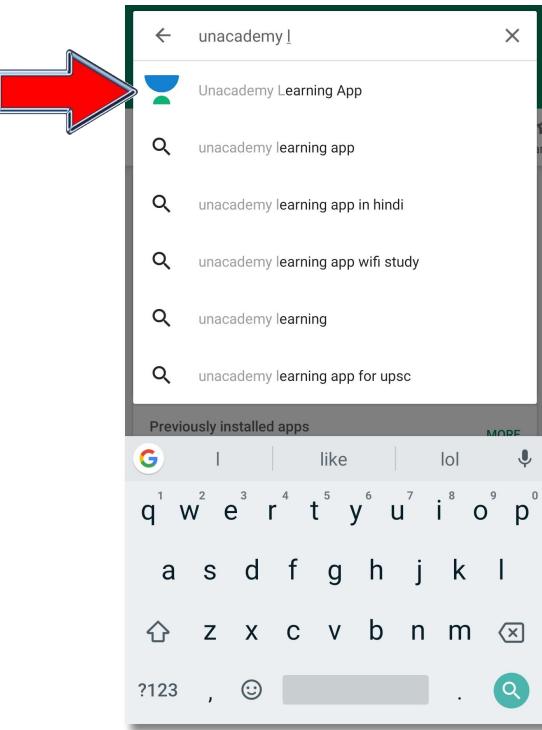


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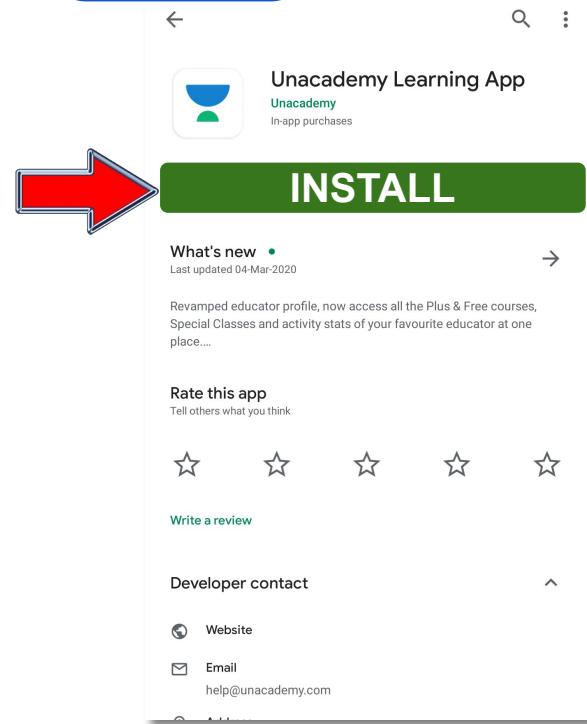


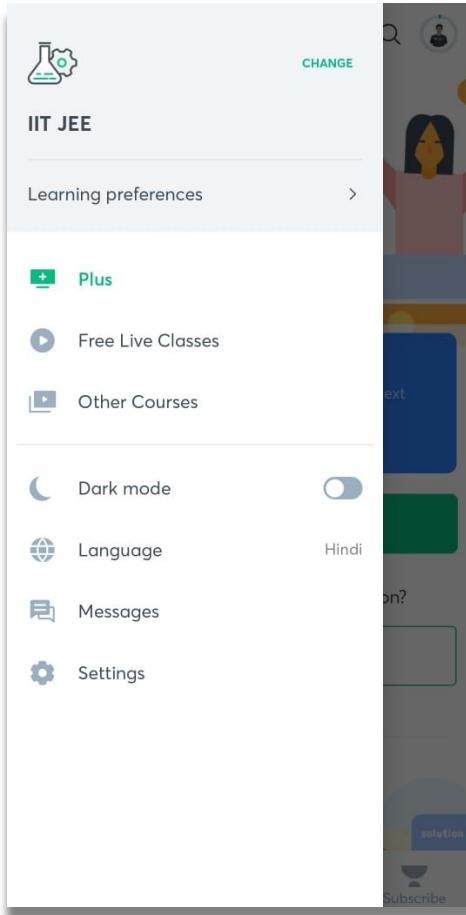
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## Step 2





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