YAKEEN NEET 2.0

2026

Basic Maths and Calculus (Mathematical Tools)

PHYSICS

Lecture - 05

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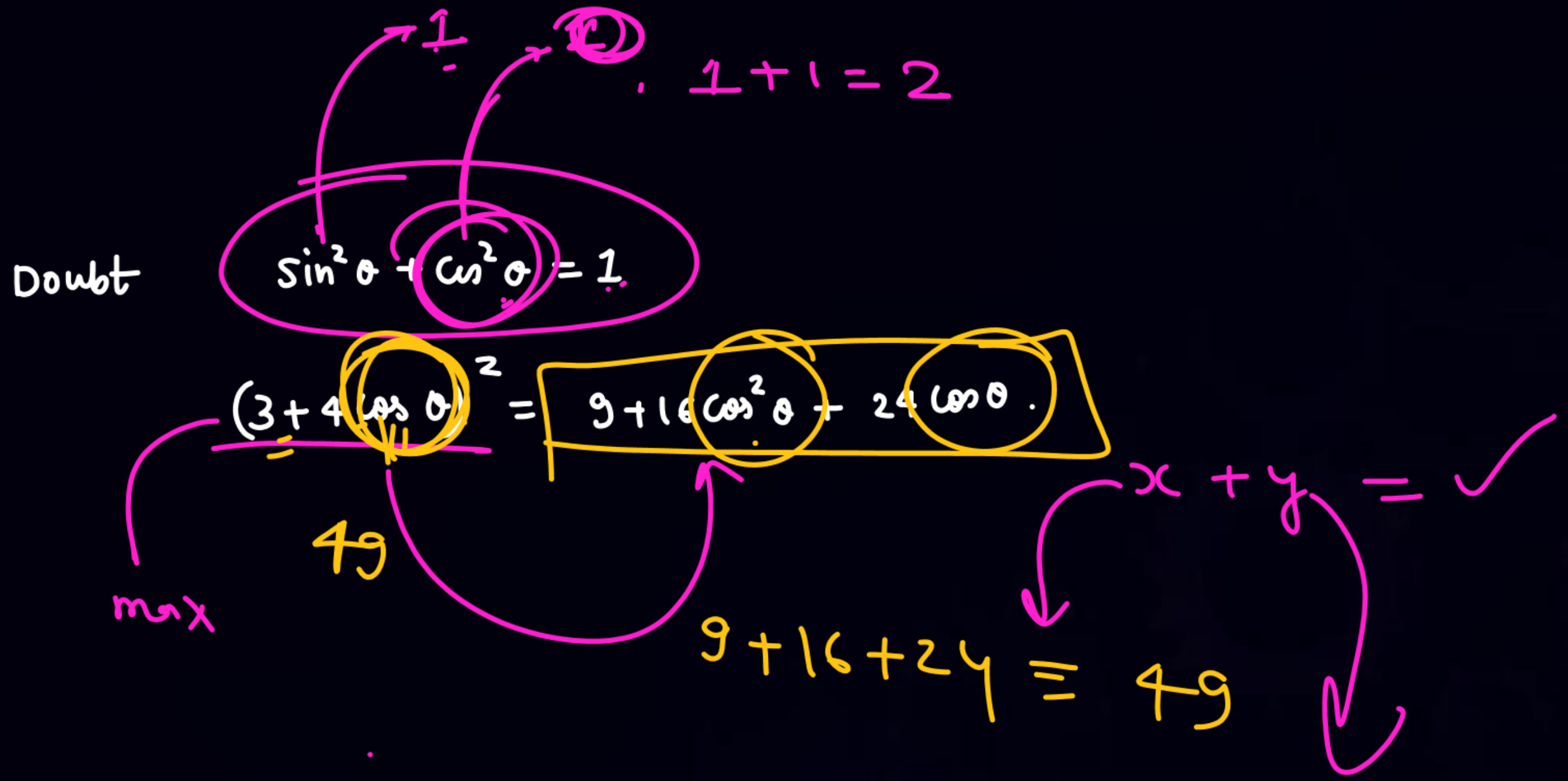
Topics to be covered

- Conversion of radian into degree.
- Two equation solving


1
1
1+1=2
Doubt
$\sin^2\theta + \cos^2\theta = 1$
$(3+4\cos\theta)^2 = 9+16\cos^2\theta+24\cos\theta$
max
49
$9+16+24 \equiv 49$
$x+y=\checkmark$

$14^2 \longrightarrow 156X$

$\longrightarrow 196$

Revision

$\pi = 180^\circ$ ✗

$\pi = 3.14 = \frac{22}{7}$
की value

π rad $= 180^\circ$

- one degree = 60 minute = 60 × 60 sec.
- π rad = 180 degree = 180 × 60 minute

Q Convert 5 rad into minute.

Sol^{n} π rad = 180 degree

π rad = 180 × 60 minute

$1 \text{ rad} = \frac{10800 \text{ minute}}{\pi}$

$5 \text{ rad} = \frac{5 \times 10800 \text{ minute}}{\pi}$

Q Convert 1 rad into minute

Sol π rad = 180 degree = 180 × 60 minute

$1 \text{ rad} = \frac{180 \times 60}{\pi}$ minute

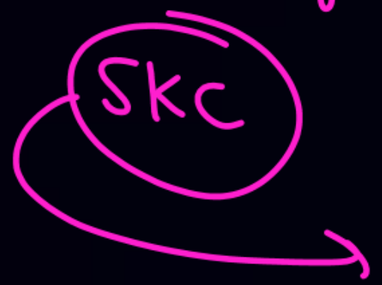
Q Convert 1 rad into second.

$1 \text{ rad} = \frac{180 \times 60}{\pi}$ minute

$1 \text{ rad} = \frac{180 \times 60}{\pi} \times (60 \text{ sec})$

π rad = 180 degree = 180 × 60 minute = 180 × 60 × 60 sec

1 degree = 60 minute = 60 × 60 sec = 3600 sec



π radian = 180 degree = 180×60 minute = $180 \times 60 \times 60$ sec

Q Convert 6 rad into minute.

Sol^n

π rad = 180×60 minute

1 rad = $\frac{180 \times 60 \text{ minute}}{\pi}$

6 rad = $\frac{180 \times 60}{\pi} \times 6$ minute

Q Convert 6 rad into second

6 rad = $\frac{180 \times 60}{\pi} \times 6 \times (60 \text{ sec})$

Q Convert 6 degree into minute.

Sol^n

1 degree = 60 minute

6 degree = 6×60 minute

= 360 minute

Q Convert 40 minute into radian.

Sol^n

π radian = 180×60 minute

π radian = 10800 minute

10800 minute = π rad

40 minute = $\frac{\pi}{10800} \times 40$ rad.

= $\frac{\pi}{270}$ rad.

Q $$\frac{\sin\theta+\cos\theta}{\sin\theta-\cos\theta}=\frac{9}{4}$$

find $\tan\theta = ?$

① $$\frac{\frac{\sin\theta}{\cos\theta}+\frac{\cos\theta}{\cos\theta}}{\frac{\sin\theta}{\cos\theta}-\frac{\cos\theta}{\cos\theta}}=\frac{9}{4}$$

$$\frac{\tan\theta+1}{\tan\theta-1}=\frac{9}{4}$$

$4\tan\theta+4=9\tan\theta-9$

$13=5\tan\theta$ $\quad \boxed{\tan\theta=13/5}$

(M2) $4(\sin\theta+\cos\theta)=9(\sin\theta-\cos\theta)$

$4\sin\theta+4\cos\theta=9\sin\theta-9\cos\theta$

$9\cos\theta+4\cos\theta=9\sin\theta-4\sin\theta$

$13\cos\theta=5\sin\theta$

$$\boxed{\frac{13}{5}=\tan\theta}$$

(M3) $$\frac{\sin\theta+\cos\theta}{\sin\theta-\cos\theta}=\frac{9}{4}$$

$$\frac{\sin\theta}{\cos\theta}=\frac{9+4}{9-4}=\frac{13}{5}$$

$\tan\theta =$

watch Last 10 min of today extra mini Lecture

2 equation को solve करना (Find value of x & y)

(या तो + या − या setting करके +/− दें)

① $x+y=10$

$x-y=30$

Add $2x+0=40$

$\boxed{x=20}$

$x+y=10$

$20+y=10$

$y=10-20=-10$

② $2x+y=20$

$x+y=4$

$x+0=16$

$x+y=4$

$16+y=4$

$y=4-16=-12$

② $2x+y=20$

$-x\pm y=-4$

$x+0=16$

Kissi एक Variable (x, y) से छुटकारा पाना है उसे भगाना है

③ $3x + 2y = 30$

$x + y = 10$ → multiply by 2

$2x + 2y = 20$ ←

$$\begin{array}{r} 3x + 2y = 30 \\ -\ 2x \pm 2y = 20 \\ \hline x = 10 \end{array}$$

$y = 0$

Q $3x + 4y = 10$

$x + y = 3$

$3x + 3y = 9$

now

$$\begin{array}{r} 3x + 4y = 10 \\ -\ 3x \pm 3y = 9 \\ \hline y = 1 \end{array}$$

$x = 2$

Q $3x - 4y = 40$

$x + 2y = 10$

$\Rightarrow$

$3x - 4y = 40$

$2x + 4y = 20$ (Add)

$5x + 0 = 60$

$\boxed{x = 12}$

$x + 2y = 10$

$12 + 2y = 10$

$2y = 10 - 12$

$2y = -2$

$\boxed{y = -1}$

Q $3x + 7y = 50$ $\xrightarrow{\times 7}$ $21x + 49y = 350$

$7x + 8y = 30$ $\xrightarrow{\times 3}$ $21x + 24y = 90$

$$0 + 25y = 260$$

$$y = \frac{260}{25} = \frac{52}{5} = 10.4$$

$3x + 7y = 50$

Put Value of y in it & get x

find x

Q $(3x + 4y = 10)$ $\times 3$

$(4x + 3y = 6)$ $\times 4$

$9x + 12y = 30$

$-\ 16x + 12y = 24$

$-7x + 0 = 6$

$x = -6/7$

find x

Q $3x - 5y = 10$ $\longrightarrow$ $\times 7$

$4x + 7y = 20$ $\longrightarrow$ $\times 5$

$21x - 35y = 70$

$20x + 35y = 100$

$41x = 170$

$x = \frac{170}{41}$

Q $100 - T = 4a$

$T - 50 = 6a$

Add $50 = 10a$

$\boxed{a = 5}$

$T - 50 = 6a$

$T - 50 = 6 \times 5$

$\boxed{T = 80}$

Q*

$200 - T = 20a$

$T - 150 = 15a$

$50 = 35a$

$\boxed{a = \frac{10}{7}}$

Q

$3i_1 + 4i_2 = 20$ $\xrightarrow{\times 3}$ $9i_1 + 12i_2 = 60$

$4i_1 - 3i_2 = 10$ $\xrightarrow{\times 4}$ $16i_1 - 12i_2 = 40$

$i_1 = 4$

$3i_1 + 4i_2 = 20$

$12 + 4i_2 = 20$

$i_2 = 2$

Q

$$M L^2 T^{-2} = M^{x+y} L^{x+2y-3} T^{-3}$$

$$\therefore$$

$$-2 = -3$$

$$\boxed{3 = 2}$$

$$x + 2y - 3 = 2$$

$$x + 2y - 2 = 2$$

$$\boxed{x + 2y = 4}$$

$$x + y = 1$$

$$x + 2y = 4$$

$$0 - y = -3$$

$$\boxed{y = 3}$$

$$\boxed{x = -2}$$

Q $M^{1} L^{1} T^{-2} = M^{x+y} L^{x-y+z} T^{z}$

$x+y = 1$

$x-y+z = 1$

$z = -2$

Now $z = -2$

$x-y-2 = 1$

$x-y = 3$

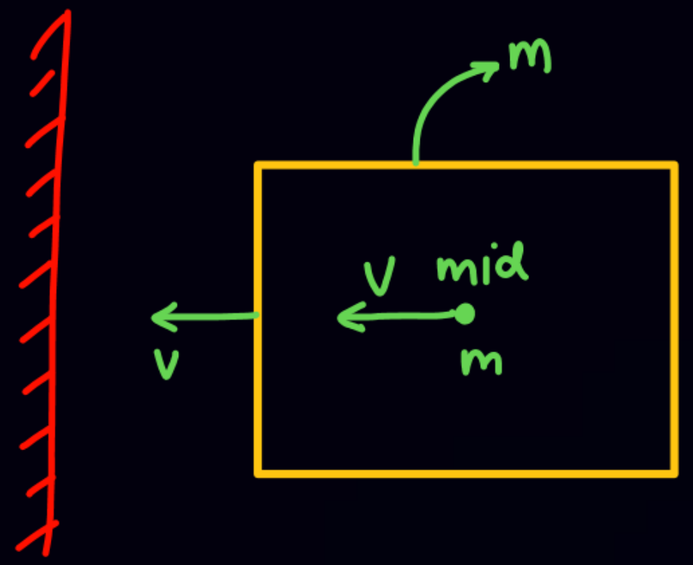
$x+y = 1$

$x = 2$

$y = -1$

H_2 floor

Q



how many collision will be there.

All collision are elastic

$e = 1$

Home Work

- DPP
- KPP (will try to upload today evening)

join it

THANK YOU