YAKEEN NEET 2.0

2026

Basic Maths and Calculus (Mathematical Tools)

Physics | **Lecture - 01**

By- Manish Raj (MR Sir)

PHYSICS

#| Patience |
Sc Concept
(Sikho)

Pen
Notes
Rara
Calcul Koro

Papez
(rough page)

Praltius

Progres

phys (5 hr)

sirf Physics

M.R. Sir

Test

PW

10000 Question → ∫ Langarah + Mahamanthan + Class PPT + DPP → 2 Try

6000+ class me.
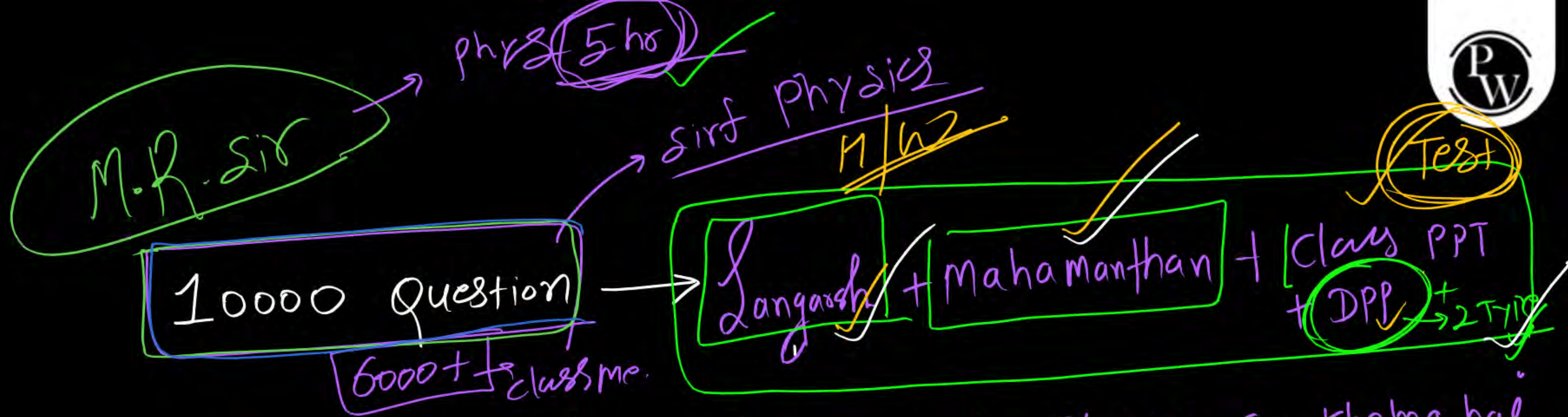
✡ Concept Ko feel Se Padhna hai, Physics Se khelna hai.

✡ Ghar Par Bhot Sare Question Karna chahte ho; ✓

✡ Extra lecture Se Paresan Nahi hoge.

✡ −ve Se Start Karne Ke liye ready ho & advance Tak Jana hai.

9:42

‹ My Performance

Batch
Yakeen NEET 2.5

Subject
Physics OG...

Overall Analysis

Tracked till 17/05/2025

Lectures Taken
347 + 21/pt

Lectures Cancelled reshudule
9

Expected Lecture	Starts On May 18th 2025
Actual Lecture	Ch - 30 : semiconductor Electronics: Materials, Devices and Simple Circuits Lect - 3

- Class Nahi Miss Karna hai.

- All theory notes me likhna hai (Short Nores khud banana hai) ✓

- Question rough page me solve karna hai. ✓

- Jo question 1st time me solve nahi hua usko mark karke rakhna hai. *for resis*

- Class ke bad notes band kar ke complete theory rough page me like ke practice karna hai

- Question Practive ⇒ MR Physics PDF, module
  - ⇒ Notes
  - ⇒ DPP
  - ⇒ Sangarsh Assignment
  - ⇒ Mahamanthan

Numercl
thery

JEE Mains (Adv)
NCERT all
All books included

YE PAP MAT KARNA

(1) Ye to easy hai, class nahi karna PDF se ho jayega ✗

(2) Bina proper question read kiye answer dena ✗

(3) Half calculation ke bad sochna, ho to gya isse ye aa jayega ✗
(Bio me direct answer dikh jata hai)

(4) H/W / question practice nahi kar rha, (sirf teacher ke question solve ✓
karne se nahi hoga)

(5) Direct tough question karna hai, pahle basic ka master hona hoga.

(6) Backlog hai to test nahi diya ✗

(7) Life me dosti, pyar bhi jaruri hai. ✗

(8) Mind-Fresh hone ke liye 20-25 minute to insta/youtube jaruri hai

Success Margdarshan

30-45 minute every week throughout the year
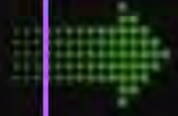
Daily Challenger

2-3 question in every class solution in next class or next to next

Critical thinking develope ho jaygi

Maha-Manthan

NCERT deep line / HCV objective

Theory me problem nahi aayga

Sangarsh-Assignment

JEE Mains (80-90%) advance, level up question doubts of topper.

Solution mai dunga to koi problem nahi

$200 - 3\alpha$

MR Physics PDF

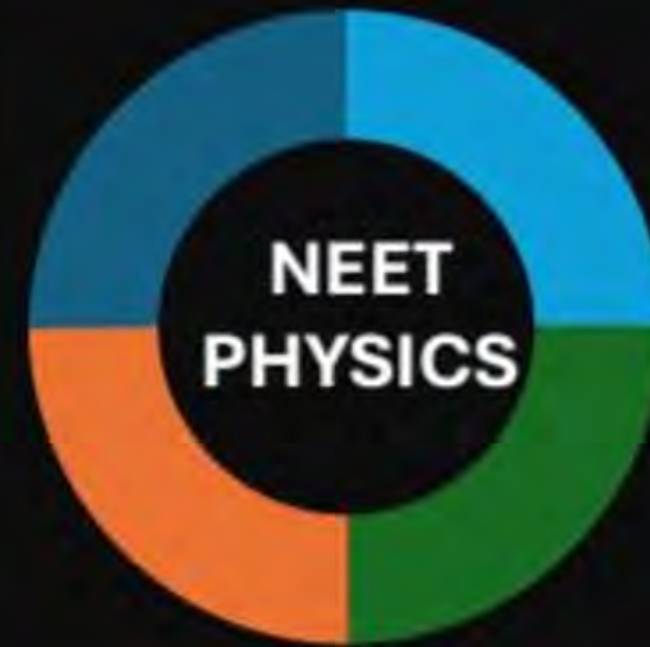Chapter wise extra question nahi likhna hai

Test Discussion

Selective level up question will discuss in class.

Start Karte hai

What is the value of 50 by half?

(1) 50

(2) 25 × 30%

(3) 100

(4) 200

70%

$$\frac{50}{\left(\frac{1}{2}\right)} = \frac{50 \times 2}{1} = \frac{100}{1}$$

$$\frac{50}{0.5} = 100 \checkmark$$

$$\frac{50}{2} = 25$$

Find x

$$\frac{4}{(1/x)} = 3$$

$$\frac{y}{(1/3)} = 4$$

$$\frac{4}{1/x} = 3$$

$$4x = 3$$

$$\boxed{x = \frac{3}{4}}_{P}$$

$$\frac{y}{(1/3)} = 4$$

$$\boxed{y = \frac{4}{3}} \text{ A} \checkmark$$

$$\# \quad \frac{a/b}{c/D} = \frac{aP}{bC} \quad \checkmark$$

$$\pi^2 \simeq 10$$

$$e = 2.71$$

(P)(W)

Which is greater (a) $\dfrac{1}{\pi}$ or (b) $\dfrac{1}{e}$

$$\pi = 3.14$$

$$\boxed{\pi > e}$$

(1) $\dfrac{1}{\pi}$ ✗

$$\frac{1}{\pi} = \frac{1}{3.14} = \frac{1}{3.14} \times \frac{10}{10} \cdot {}^{3.14}$$

$$\frac{1}{\sqrt{2}} > \frac{1}{2}$$

(2) $\dfrac{1}{e}$

90%

$$\# \quad \frac{1}{\pi} = 0.314$$

$$\# \quad \frac{1}{e} = \frac{1}{2.71} = 0.37$$

(3) Same

(4) Can't say

$$\frac{1}{x\uparrow} = \text{decreal}$$

$$\frac{1}{10} = 0.1$$

$$\frac{1}{100} = 0.01$$

$$\frac{1}{1000} = 0.001$$

What is the value of $\sqrt{50} + \sqrt{50}$?

1. $4\sqrt{50}$

2. $\sqrt{100}$

3. $\sqrt{200}$

(30%)

4. 50

$$\sqrt{50} \times \sqrt{50} = 50$$

$$\sqrt{2} \times \sqrt{2} = 2$$

$$\sqrt{50} + \sqrt{50} = \sqrt{50}(1+1)$$

$$= \sqrt{50} \times 2$$

$$= 2 \times \sqrt{50}$$

$$= \sqrt{4 \times 50} = \sqrt{200} \checkmark$$

$$\sqrt{4} = 2$$

Notez मे लिखो

(P) (W)

(Q) If n is a non-zero numbers then $n^2 < n$ is possible?

Ans Yes

$$n = 0.1$$

$$n^2 = (0.1)^2$$

$$= 0.1 \times 0.1 = 0.01$$

$$= \frac{1}{10} \times \frac{1}{10}$$

$$= \frac{1}{100}$$

$$\boxed{n^2 = 0.01}$$

$$2^2 = 4 \qquad 3^2 = 9$$

$$\boxed{2^3 = 8} \qquad 3^3 = 27$$

$$2^4 = 16 \qquad 3^4 = 81$$

$$2^5 = 32 \qquad 3^5 = 243$$

$$2^6 = 64$$

$$2^7 = 128 \qquad 4^2 = 16$$

$$4^3 = 64$$

$$4^4 = 256$$

$$5^2 = 25 \quad 5^3 = 125$$

Rule of Power [Exponent]

1. If Power of any non-zero number is zero then it will be equal to 1

$$2^0 = 1 \qquad 8^0 = 1 \qquad 10^0 = 1 \qquad e^0 = 1$$

2. In Product if Base is same then Power will add. ✓

$$x^n \cdot x^m = x^{n+m}$$

$$10^2 \times 10^6 = 10^{12} \quad \times$$

$$10^2 \times 10^6 = 10^8 \quad \checkmark$$

$$10^4 \times 10^3 = 10^7$$

$$10^4 + 10^3 = 10^7 \quad \times$$

Find value of $10^2 + 10^3$?

1 10^5 50% ✗

2 10^6 ✗

3 1.1×10^3 ✓

4 1010 ✗

$$10^2 + 10^3 = 10^5 ✗$$

$$10^2 + 10^3 = 100 + 1000$$
$$= 1100$$
$$= \frac{1100 \times (1000)}{(1000)}$$
$$= 1.1 \times 10^3$$

3. Division property of exponent (Power)

if Base is same in division then Power will subtract.

$$\frac{10^3}{10^2} = 10^{3-2} = 10$$

4. Negative property of power

$$\frac{10^{-19}}{10^{-31}} = 10^{-19} \times 10^{31} = 10^{31-19}$$

$$= 10^{12} \checkmark$$

$$x^n = \frac{1}{x^{-n}}$$

$$\# \quad 10^3 = \frac{1}{10^{-3}}$$

$$\boxed{\frac{1}{10^{-5}} = 10^5}$$

5. Power of power

$$(x^n)^m = x^{n \times m}$$

$$(2^3)^4 = 2^{12} \checkmark$$

$$4^{1/2} = \sqrt{4} = 2$$

$$(2^2)^{\frac{1}{2}} = 2$$

6. Fractional Power

$$(x)^{3/2} = (x^3)^{\times \frac{1}{2}} = (x^{\frac{1}{2}})^3$$

$$(4)^{3/2} = (4^{\frac{1}{2}})^{\times 3}$$

$$= (2)^3 = 8$$

$$(8)^{2/3} = (2^3)^{\frac{2}{3}} = 2^2 = 4 \checkmark$$

➤ $(8)^{2/3} =$

➤ $(4)^{4/3} =$

➤ $(64)^{2/5} =$

➤ $(1/2)^{-3} =$

➤ $(4)^{-3/2} =$

➤ $(2)^{-4} =$

➤ $(32)^{2/5} =$

➤ $(64)^{2/3} =$

➤ $(125)^{2/3} =$

➤ $(25)^{3/2} =$

➤ $(216)^{2/3} =$

magmh

$$R = R_0 A^{1/3}$$

- $\sqrt{2} = 1.41$

- $\sqrt{3} = 1.73$

- $\sqrt{5} = 2.23$

- $\sqrt{6} = 2.44$

- $\pi^2 = 10$

- $\sqrt{2} \times \sqrt{2} = 2^{1/2} \times 2^{1/2} = 2^{\frac{1}{2} + \frac{1}{2}}$
$$= 2^1 = 2$$

- $\dfrac{\sqrt{2}}{2} = \dfrac{\sqrt{2}}{\sqrt{2} \times \sqrt{2}} = \dfrac{1}{\sqrt{2}}$

- $\dfrac{2}{\sqrt{2}} = \dfrac{\sqrt{2} \times \sqrt{2}}{\sqrt{2}} = \sqrt{2}$

H/W

(P)(W)

Solve the expression

(i) $\dfrac{9^2 - 9}{9}$

(ii) $\dfrac{13^2 - 12^2}{13 + 12}$

(iii) $\dfrac{21^2 - 21}{21}$

(iv) $\dfrac{\sqrt{2} + \sqrt{2}}{\sqrt{2}}$

(v) $\dfrac{9^{3/2} - 6}{7}$

(vi) $(2^\circ - 3)^2 - 1$

(vii) $\dfrac{12}{\sqrt{2}}$

(viii) $\dfrac{x^2}{81} = \dfrac{9}{x}$

H/W

(P)(W)
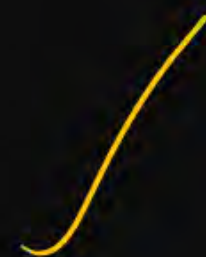
Find value of

(i) $10^2 - (-10^3) =$ _____

(ii) $9^0 + 9 =$ _____

(iii) $27 + 7^0 =$ _____

(iv) $4^3 - 4^2 =$ _____

(v) $3 - 1^2 =$ _____

(vi) $(8)^{2/3} =$ _____

(vii) $(4)^{5/2} =$ _____

(viii) $(27)^{2/3} =$ _____

(ix) $t^2 t^3 =$ _____

(x) $\dfrac{1}{x^2\sqrt{x}} =$ _____

(x) $(27)^{1/3} =$ _____

(xi) $(9)^{5/2} =$ _____

Compare (a) 0.4   (b) 0.40   (c) 0.400 $= \dfrac{400}{1000} = \dfrac{4}{10}$ ✓

Which is greater ??

$$0.4 = \dfrac{4}{10}$$

$$0.40 = \dfrac{40}{100} = \dfrac{4}{10}$$

~~(a)~~ 0.4 (10%)

(b) 0.40

(c) 0.400

(d) equal all

$$0.4 = \dfrac{4}{10}$$

$$0.04 = \dfrac{4}{100}$$

$$0.004 = \dfrac{4}{1000}$$ ✓

$$\frac{1}{10} =$$

$$\frac{1}{100} =$$

$$\frac{1}{1000} =$$

$$\frac{1}{10^4} -$$

$$\frac{1}{10^{-5}} =$$

Effect on Power due to Shifting of Decimal Place

$$2.43 \times 10^2 = 24.3 \times 10^1$$

$$\frac{2.43 \times 10^2 \times 10}{10} = 24.3 \times 10^1$$

$$0.243 \times 10^3 \checkmark$$

$$7.839 \times 10^{-4} = ?$$

$$\frac{7.839 \times 10^{-4} \times 10^2}{10^2} =$$

$$783.9 \times 10^{-6} \checkmark$$

$$0.07839 \times 10^{-2}$$

Find the value of y in given expression:

$$4.38 \times 10^2 = y \times 10^4$$

$$23.4 \times 10^{-2} = y \times 10^2$$

$$501.3 = 50.13 \times 10^y$$

$$48.6 = 4860 \times 10^y$$

$$0.38 = 0.0038 \times 10^y$$

$$0.038 = 3800 \times 10^y$$

$$0.03800 = \frac{3800}{10^5} = \frac{3800 \times 10^{-5}}{}$$

$$\frac{4.38 \times 10^2 \times 10^2}{10^2} = 0.0438 \times 10^4$$

m*R*

$$4.38 \times 10^2 = 0.0438 \times 10^4$$

$$501.3 = \frac{501.3}{10} \times 10 = 50.13 \times 10^2$$

$$\boxed{Y = 1}$$

$$A^0 = 10^{-10} m$$
$$nm = 10^{-9} m$$

4 µm = _____ Å

3$\sqrt{8}$ = ?

5 mm = _____ nm

$\sqrt{3.6 \times 10^{-5}}$ =

12400Å = _____ nm

$12400 \times 10^{-10} m = 1240 \times 10^{-9} m$

0.4 C = _____ × 10⁴ C

0.4 C = 4000 _____ × 10⁻⁴C

$\dfrac{12400 \times 10^{-10} \times 10}{10} = 1240 \times 10^{-9}$

$= 1240 \, nm$

$\dfrac{0.4 \times 10^4}{10^4} = \dfrac{0.4 \times 10000}{10^4} = 4000 \times 10^{-4}$

> **Changing the side of Power:**

(i) Find x in given expression:

$$(x)^{1/3} = 4$$

$$x = y^{3/1}$$
$$= y^3$$
$$= 4 \times 4 \times 4$$
$$= 64$$

taking cube both side

$$\left(x^{\frac{1}{3}}\right)^3 = y^3$$

$$\boxed{x^1 = y^3 = 64}$$

$$\Rightarrow \quad x^{1/2} = y$$

Squaring both side

$$\left(x^{\frac{1}{2}}\right)^2 = y^2$$

$$\boxed{x = y^2}$$

Find x if $(x)^{2/3} = 9$

$$x^{2/3} = 9$$

$$x = (9)^{3/2}$$

$$x = (3^2)^{3/2} = 3^3 = \underline{\underline{27}}$$

Find x in given expansion:

$(x)^{\frac{3}{4}} = 27$

$(x)^{\frac{3}{2}} = 8$

1. If $3^{6-x} = 27$, find value of x.

$$3^{6-x} = 3^3$$

$3^2 = 9$

$3^3 = 27$

$6 - x = 3$
$6 - 3 = x$
$\quad\quad x = 3$ Ans

2. If $2^{y-4} = 64$, find value of y.

H/W

Find value of x:

(i) $4^{x/2} = 8$

(ii) $10^{x/4} = 10^5$

(iii) $\dfrac{10^7}{10^{x/2}} = 10^6$

(iv) $x^{-2/5} = \dfrac{1}{9}$

$y^{x/2} = 8$

$2^{2 \times \frac{x}{2}} = 2^3$

$\boxed{2^x = 2^3}$

$x = 3$

If $(x - 4)^{2/3} = 4$. Find x.

$$(x - 4)^{2/3} = 4$$

Find value of x for given expression?

$$27 = (5 + x^2)^{3/2}$$

magnetic field on axis of Ring

$$27 = \left(5 + x^2\right)^{3/2}$$

$$\left(5 + x^2\right) = (27)^{2/3}$$

$$\left(5 + x^2\right) = \left(3^3\right)^{\frac{2}{3}} = 3^2$$

$$5 + x^2 = 9$$

$$x^2 = 9 - 5$$

$$x^2 = 4$$

$$x = \sqrt{4} = \pm 2$$

H/W

If $\left(\dfrac{a}{b}\right)^{x-1} = \left(\dfrac{b}{a}\right)^{x-3}$. Find x.

Find value of 0.36 × 175?

$$0.36 \times 175 = ??$$

$$\frac{\overset{9}{36}}{\underset{4}{100}} \times \overset{7}{175} = \underline{\underline{63}}$$

$$\Rightarrow 0.28 \times 200 = ?$$

Convert decimal to fraction:

$0.2 = \dfrac{2}{10}$

$0.4 = \dfrac{4}{10}$

$0.5 = \dfrac{5}{10}$

$0.60 = \dfrac{60}{100}$

$0.75 = \dfrac{75}{100}$

$0.33 = \dfrac{33}{100}$

$0.66 = \dfrac{66}{100}$

H/W

(P W)

0.25

1.33

1.50

2.51

.33

Multiply this

$12 \times 0.67 =$

$16 \times 0.75 =$

$0.125 \times 24 = \dfrac{125}{1000} \times 24\ 3 \quad = \dfrac{3}{}$

$0.66 \times 18 =$

$0.33 \times 21 =$

$25 \times 0.6 = 25 \times \dfrac{6}{10} = \dfrac{150}{10} = 15$

$1.33 \times 25 =$

$(0.4)^2 =$

$$\sqrt{0.49} = \sqrt{\frac{49}{100}} = \frac{7}{10}$$
$$= 0.7$$

$\sqrt{0.49} =$

$\sqrt{0.64} =$

$(0.02)^2 = \left(\frac{2}{100}\right)^2 = \frac{4}{10^4} = 4 \times 10^{-4}$

$\boxed{\sqrt{49} = 7}$

$$\frac{1}{a} + \frac{1}{b} = \left(\frac{b+a}{ab}\right)$$

$$\frac{1}{4} + \frac{1}{3} =$$

$$\frac{4}{1} + \frac{1}{8} =$$

If rod of length l, is bended to form a coil of n-turns then find radius of coil.

Find value of $16^{-1/4} + 4^{-2}$?

H|W ✓

Find value of n; if $\dfrac{2}{n} = 4 + \dfrac{6}{7}$.

If $E = \dfrac{2KP}{r^3}$; distance becomes double then, find ratio of final to initial electric field.

If $y = \dfrac{2x^2}{z}$ if x becomes double and z becomes half then y will be

If $S = \dfrac{V_0^2}{2a}$; if speed becomes half and retardation becomes double then, find ratio of stopping distance.

Find value of n in given expression

$$\frac{2}{n} = 4 + \frac{6}{7}$$

H/W

Solve the expression

(ix) $2^x = \dfrac{1}{8}$

(x) $\dfrac{0.4}{0.01}$

(xi) $(4^\circ + 4^{-1}) \times 2$

(xii) $\sqrt{1 - 0.19}$

Addition Subtraction with Fraction

(i) $0.74 - 0.08 = ??$

(vi) 0.4×0.02

(ii) $0.9 - 0.03$

(iii) $0.94 + 0.027$

(iv) $-2.54 - 0.98$

(v) $\dfrac{0.8}{0.6}$

What is infinity?