Udaan 2.0

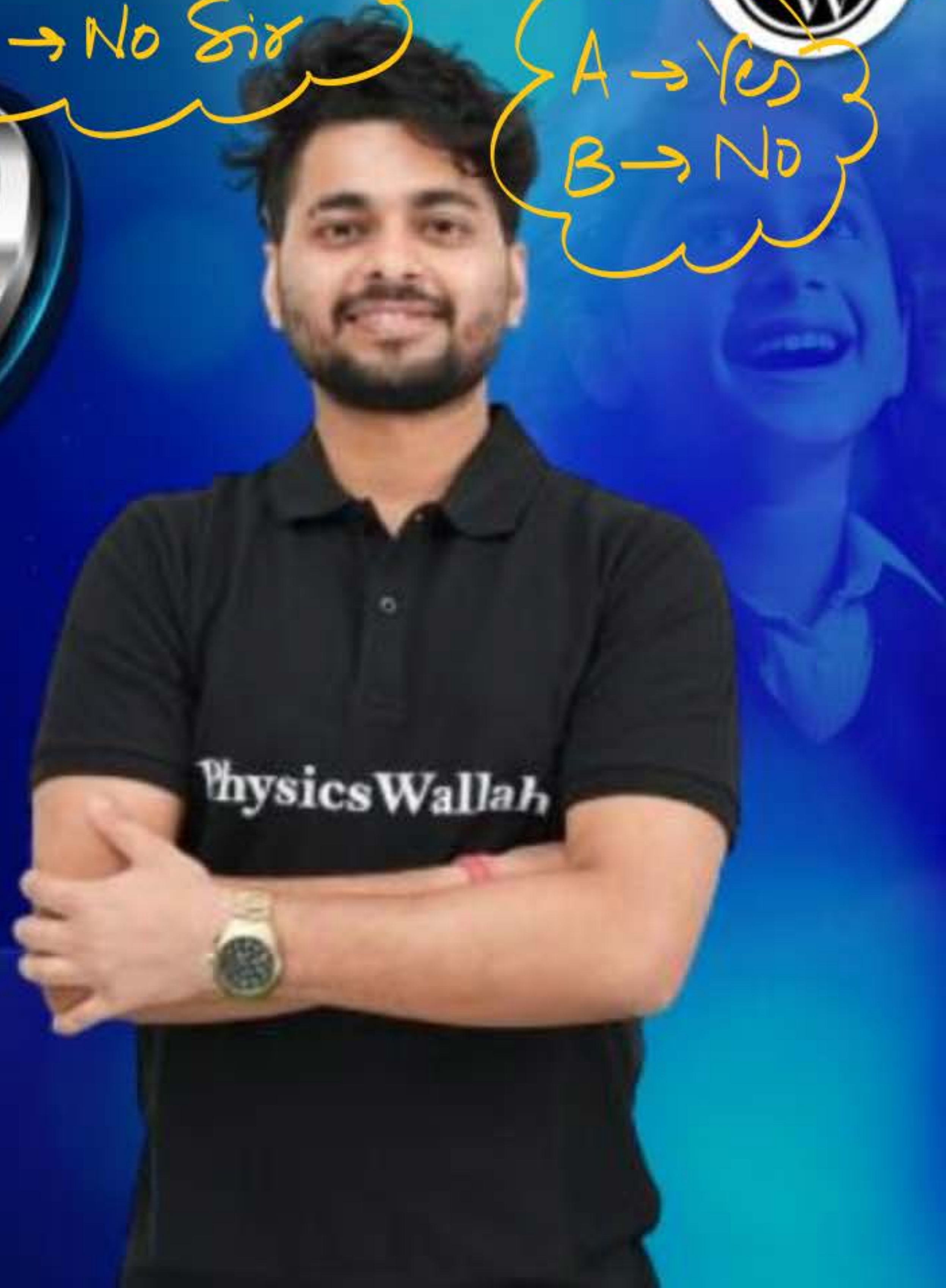
A → Yes Sir
B → No Sir

A → Yes
B → No

Class 10th Basics
(Part - 03)

Maths | **Lecture - 03**

By – Prince Sensei Sir



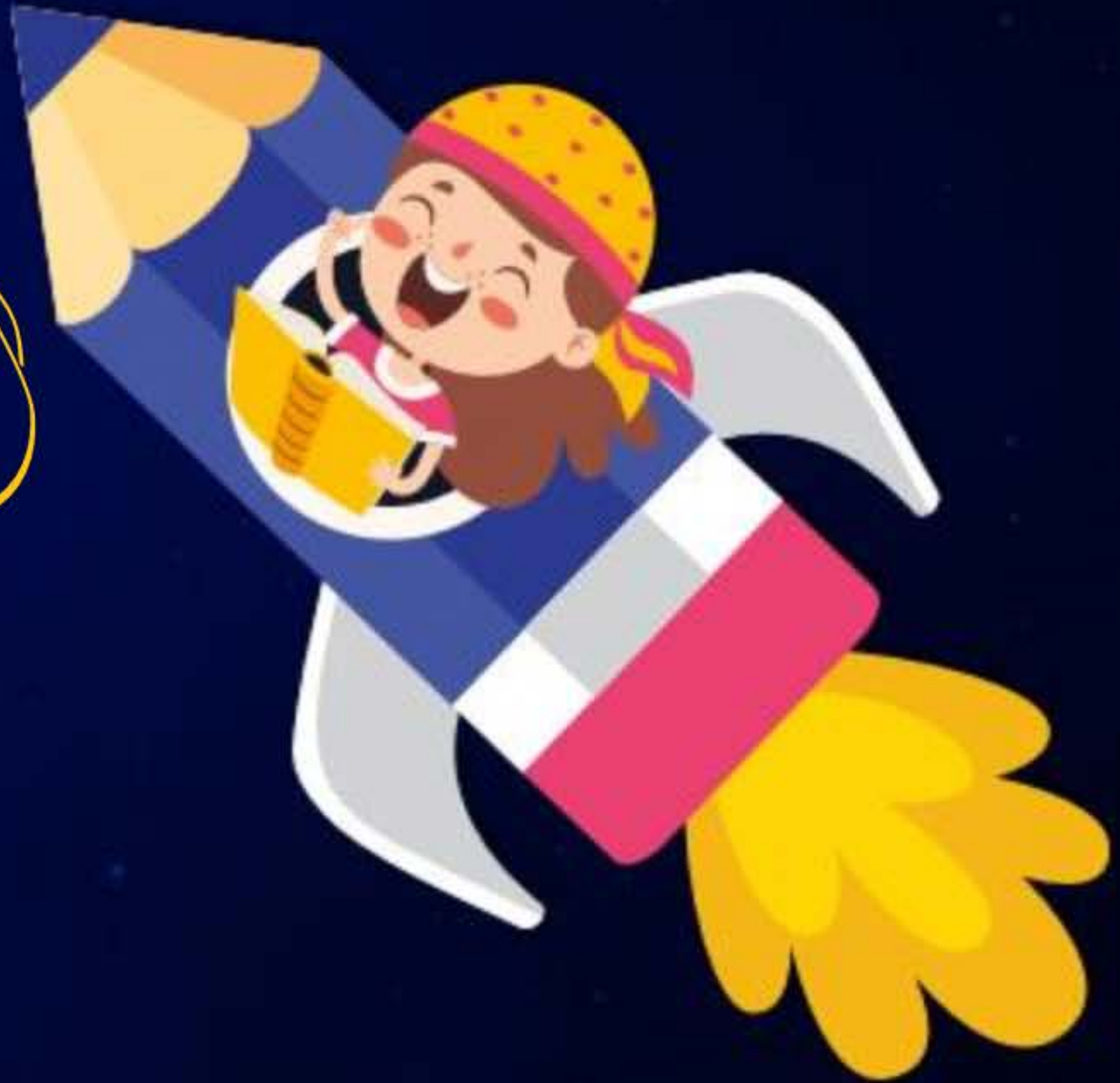
Topics *to be covered*

1. Game of signs (continued)
2. Formula Magic
3. Graphs

$(-)+(-)=(-)$

$(-2)+(-5)$

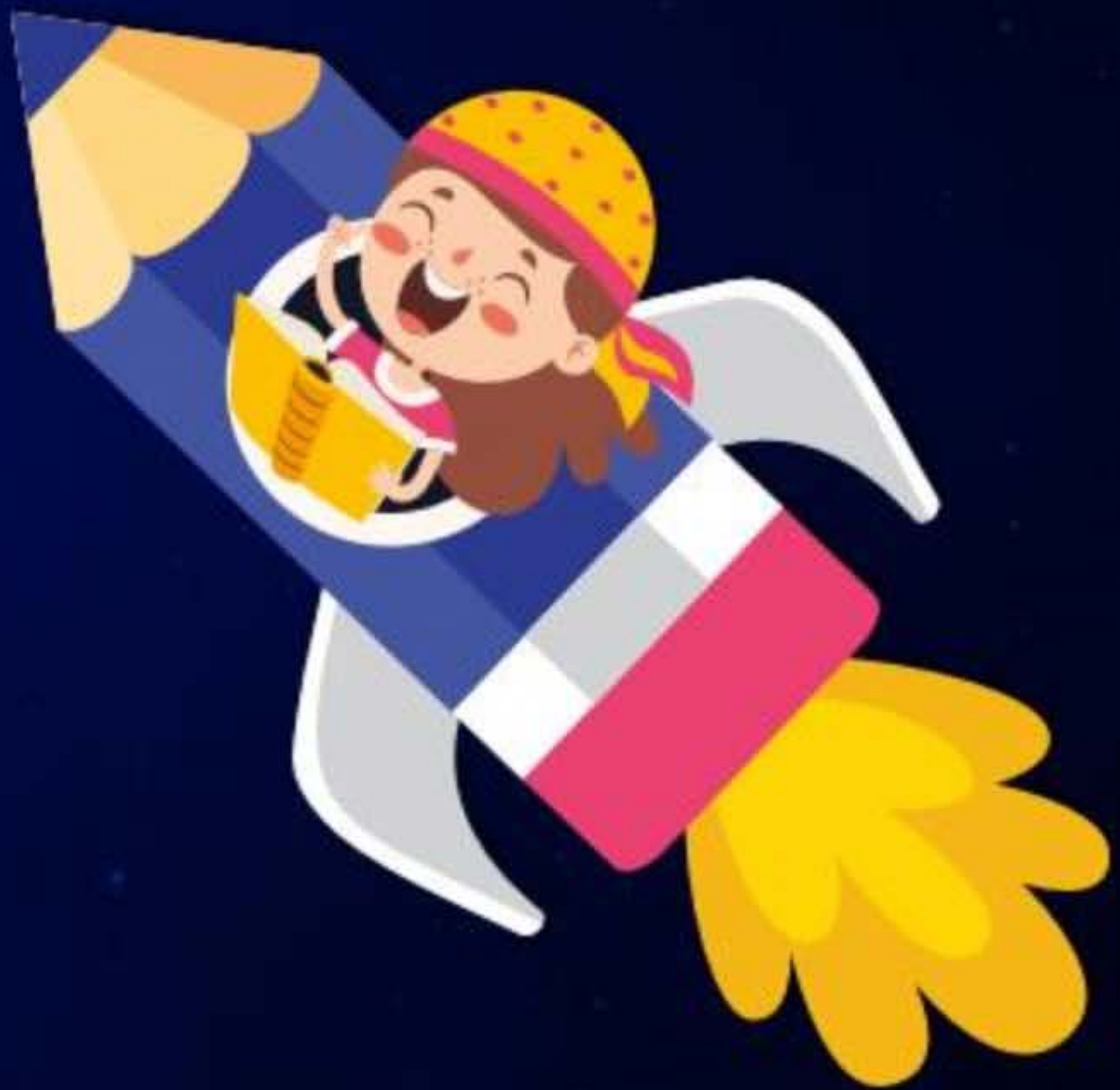
$=-2-5=-7$



Recap *of previous lecture*

1. Prime Factors & its usefulness
2. Game of signs

A → Lec – I
B → Lec – II
C → Lec I & II
D → None



Game of sign

α, β

$2 \times 6 = 12$

$\alpha + \beta$

$\alpha \otimes \beta \rightarrow \alpha \odot \beta$

* Analysing $(\alpha \cdot \beta)$

i) Case I: $\alpha \rightarrow (+)$, $\beta \rightarrow (+)$

$\Rightarrow \boxed{\alpha \cdot \beta}$

$\rightarrow (+) \times (+) = (+)$

Sol^n

a) (+)

b) (−)

c) can be (+) or (−)

d) none

Game of sign

Sign → Tutsu → Example

* Analysing $(\alpha \cdot \beta)$

ii) Case II: $\alpha \to (-)$, $\beta \to (-)$

$(-3) \times (-7) = (+21)$

Sol^n

a) (+)

b) (−)

c) can be (+) or (−)

d) none

Sol^n ⇒ $\alpha \cdot \beta$

$(-) \times (-) = (+)$

* $\boxed{\square \times \square = (+)}$ → Prince Sensei Tutsu

Same sign

Game of sign

$5 \times (-3) = -15$

$3 \times (-5)$

$= -15$

* Analysing $(\alpha \cdot \beta)$

Case III

$\alpha \rightarrow (+)$

$\beta \rightarrow (-)$

Sol^n

a) $(+)$

b) $(-)$

c) can be $(+)$ or $(-)$

d) none

$\alpha \cdot \beta$

$(+) \times (-) = (-)$

$(-) \times (+)$

Game of sign

* Analysing $(\alpha \cdot \beta)$

Case IV

$\alpha \longrightarrow (-)$

$\beta \longrightarrow (+)$

$(-2) \times 8 = -16$

$\alpha \cdot \beta$

$(-) \times (+) = (-)$

Perince Sensei Jutsu

Naruto

$\boxed{} \times \boxed{} \longrightarrow (-)$

opp signs

Sol^n

a) (+)

b) (−)

c) can be (+) or (−)

d) none

QUESTION

$2+4=6$ same sign

$-2+(-4)$
$=-6$

$\square + \square \longrightarrow +, -$ } $\square \times \square \longrightarrow (+)$?

*

Q. If γ, δ are of the same sign, then $\left(\frac{\gamma+\delta}{\gamma\cdot\delta}\right)$ is ?

A (+)

B (−)

C may be (+) or (−)

D none

Sol^n $\frac{\gamma+\delta}{\gamma\cdot\delta} \longrightarrow \frac{(+)/(-)}{(+)}$

$\Rightarrow \frac{(+)}{(+)}$ | $\frac{(-)}{(+)}$

$\Rightarrow (+)$ | $(-)$

QUESTION

Q. If a & b are of opposite signs, then what can be said about the product of 'a' & 'b'?

A (+)

B (−)

C may be (+) or (−)

D none

Sol^n: $\overbrace{\boxed{a \cdot b}}^{\text{opp signs}} \rightarrow (-)$

Formula Magic

i) $\boxed{(a+b)^2 = a^2+b^2+2ab}$

$(a+b)\cdot(a+b)$

$a^2+\underbrace{ab+ab}_{2ab}+b^2$

Twist!!

$(a+b)^2 = a^2+b^2+2ab$

$(a+b)^2-2ab = a^2+b^2$

* $\boxed{a^2+b^2 = (a+b)^2-2ab}$

$(\text{गधा})^2 + (\text{घोड़ा})^2 \longrightarrow (\text{गधा}+\text{घोड़ा})^2 - 2\times\text{गधा}\times\text{घोड़ा}$

QUESTION

Q If $(a+b)=6$ & $ab=3$, find (a^2+b^2)

(A) 36

(B) 6

(C) 30

(D) none

Sol:
$$a^2+b^2=(a+b)^2-2\cdot a\cdot b$$
$$=(6)^2-2\times \boxed{a\cdot b}\rightarrow 3$$
$$=36-6$$
$$=\boxed{30}\ \text{Ans}$$

Formula Magic

$(a^2+b^2+2ab)-(a^2+b^2-2ab)$

$\cancel{a^2}+\cancel{b^2}+2ab-\cancel{a^2}-\cancel{b^2}+2ab$

$=4ab$

11) $\boxed{(a-b)^2 = a^2+b^2-2ab}$

Way I $\rightarrow (a-b)^2 = a^2+b^2-2ab$

Way II

$\Rightarrow (a-b)^2+2ab = a^2+b^2$

$\Rightarrow \boxed{a^2+b^2 = (a-b)^2+2ab}$

$= (a-b)\times(a-b)$

$= a^2-\underbrace{ab-ab}_{-2ab}+b^2$

$a-b=3$

$a\cdot b=5$

$a+b$

$a\cdot b$

* $(a+b)^2+(a-b)^2 = 2(a^2+b^2)$
* $(a+b)^2-(a-b)^2 = 4ab$
* New New

$\rightarrow a^2+b^2+2ab+(a^2+b^2-2ab)$

$\rightarrow a^2+b^2+\cancel{2ab}+a^2+b^2-\cancel{2ab}$

$\rightarrow 2a^2+2b^2$

$\rightarrow 2(a^2+b^2)$

Formula Magic

(iii) $(a+b)^3 = a^3 + b^3 + \boxed{3a^2b + 3ab^2} \xrightarrow{} 3ab(a+b)$

$= a^3 + b^3 + \boxed{3ab(a+b)}$

$(a+b)^3 = \boxed{a^3 + b^3} + \boxed{3ab(a+b)}$

$(a+b)^3 - 3ab(a+b) = a^3 + b^3$

$$\boxed{a^3 + b^3 = (a+b)^3 - 3ab(a+b)}$$

$$\boxed{a^3 + b^3 = (a+b)(a^2 + b^2 - ab)}$$

$$\boxed{(\text{गधा})^3 + (\text{घोड़ा})^3}$$

QUESTION

Q If $a+b=1$ & $ab=2$, find (a^3+b^3)

(A) 1

(B) 2

(C) 3

(D) none / none of these / none of above

Sol^n: $\boxed{a^3+b^3=(a+b)^3-3ab(a+b)}$

$= (1)^3 - 3\times2\times1$

$= 1-6$

$= \boxed{-5}$

Formula Magic

$-3a^2b + 3ab^2 \quad (-)\times(-)$

$-3ab(a-b)$

iv) $(a-b)^3 = a^3 - b^3 - 3a^2b + 3ab^2$

$= a^3 - b^3 - 3ab(a-b)$

$(a-b)^3 = a^3 - b^3 - 3ab(a-b)$

$(a-b)^3 + 3ab(a-b) = a^3 - b^3$

$$\boxed{a^3 - b^3 = (a-b)^3 + 3ab(a-b)}$$

Less

$= (a-b)(a^2 + ab + b^2)$

$(\text{बाघा})^3 - (\text{घोड़ा})^3$

Formula Magic

a, b, c $\times$ 98%

* v) $a^3+b^3+c^3-3abc = (a+b+c)(a^2+b^2+c^2-ab-bc-ac)$

*

'0'

$a^3+b^3+c^3-3abc = 0$

* $\boxed{a^3+b^3+c^3 = 3abc}$

$a^3 \quad b^3 \quad c^3$

QUESTION

*Q If $a+b+c=0$, Then, $(a^3+b^3+c^3)=?$

A abc

B 2abc

C 3abc

D Don't know

L-1

L-2

L-3

*


Thank
YOU