ARJUNA

NEET FASTRACK 2024

Lecture No. - 02

Physics

Motion in Straight Line

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TODAYS TARGETS

1. Angle b/w Vector's
2. Addition of Vectors Graphical Method.
3. Magnitude of Resultant.

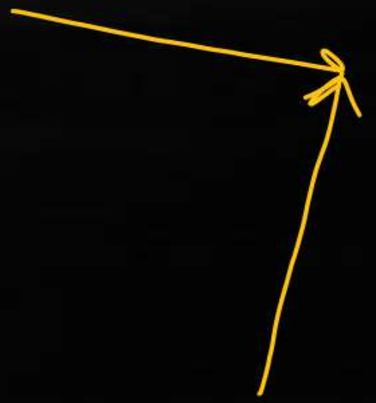
Angle b/w Vector's :

(1)

H - T Arrangment

(2)

T - T Arrangment

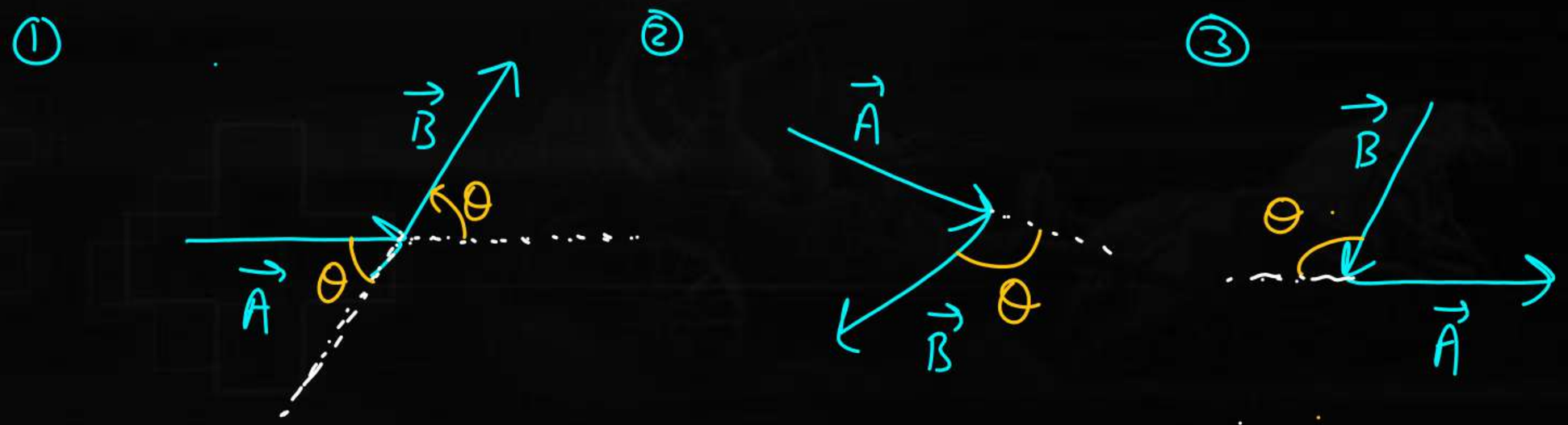


H - H Arrangment.

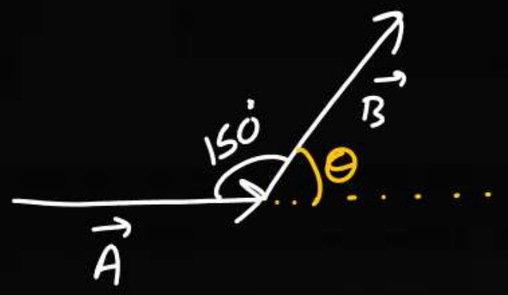
Angle b/w vector's

① When (H-T) or (T-H) are joined.

Angle b/w vector will be smaller angle taken from Extended line from one vector to another.

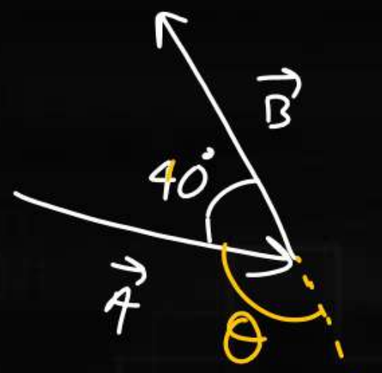


(1)



$\theta = 180 - 150 = 30^\circ$

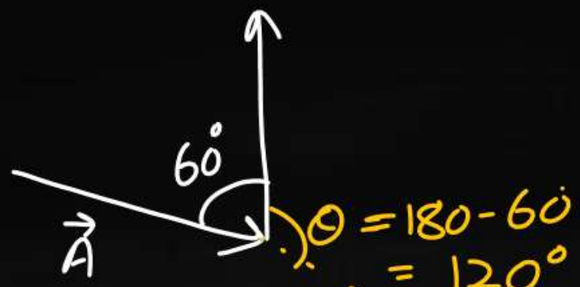
(2)



$\theta + 40^\circ = 180^\circ$

$\theta = 180 - 40^\circ = 140^\circ$

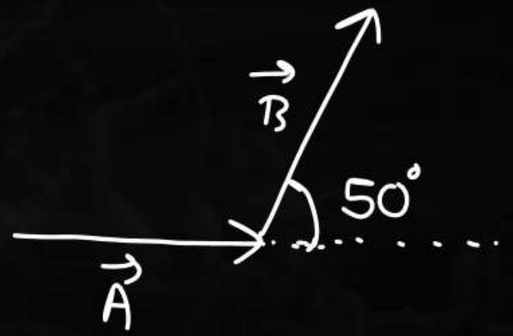
(3)



$\theta = 180 - 60$

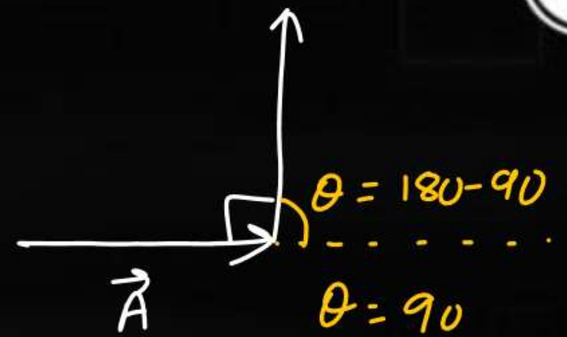
$= 120^\circ$

(4)



$\theta = 50^\circ$

(5)



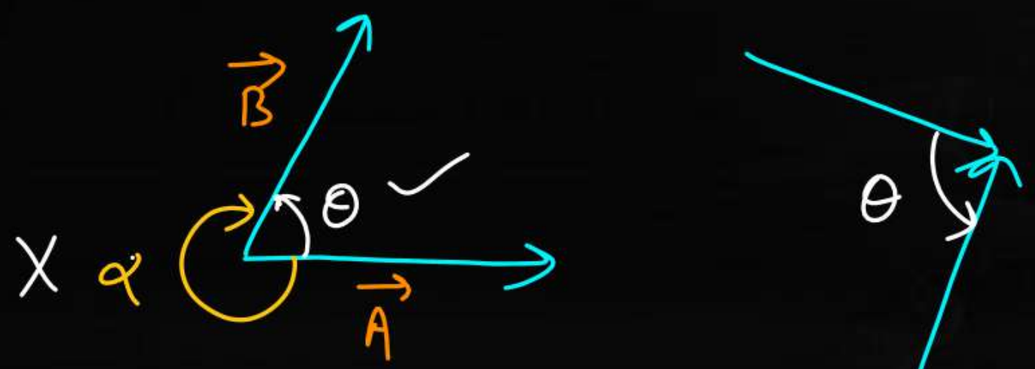
$\theta = 90$

(6)

$\theta = 180 - 110^\circ = 70^\circ$

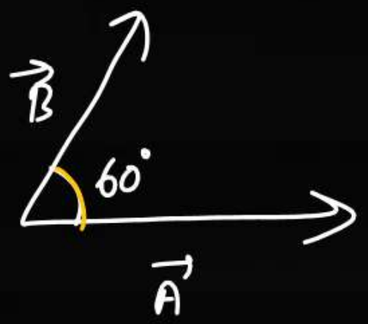
② When T-T or H-H are joined.

Angle b/w vectors will be <u>smaller</u> Angle b/w them taken Directly.



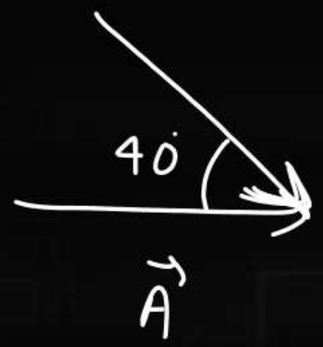
Angle b/w vector = θ

①



$\theta = 60^\circ$

②



$\theta = 40^\circ$

③

$\theta + 30^\circ = 180$

$\theta = 150^\circ$

④

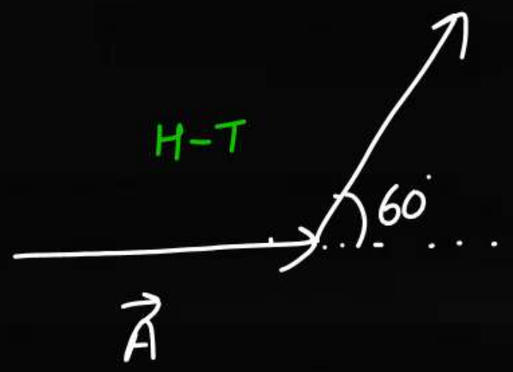
$\theta = 110^\circ$

⑤

$\theta = 180 - 60$

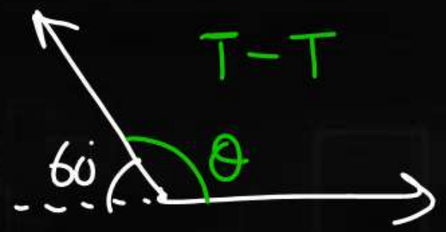
$= 120^\circ$

(A)



$\theta = 60^\circ$

(B)



$\theta = 180 - 60$

$= 120^\circ$

(C)

$\theta = 50^\circ$

(D)

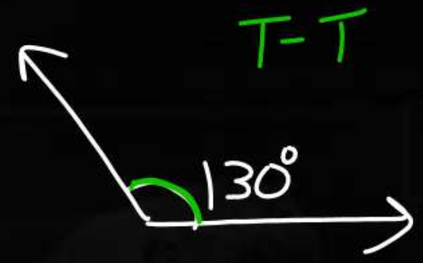
T-H

$\theta = 180 - 50 = 130^\circ$

(E)

$\theta = 180 - 45 = 135^\circ$

(F)

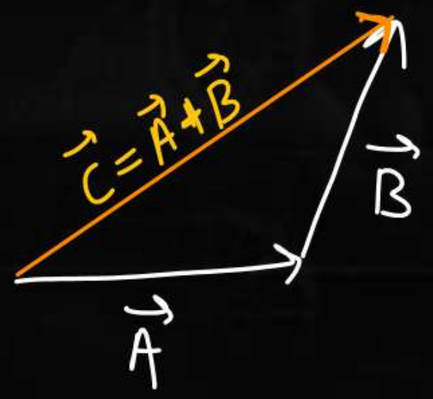


$\theta = 130^\circ$

Addition of Vectors : (Graphical Method)

① **Triangular law of Vector addition:** when (H-T) or (T-H) Arrangement.

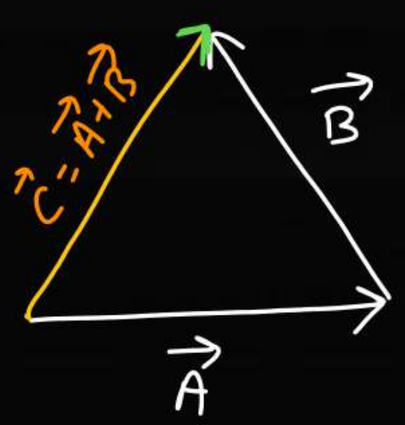
↦ when two vectors are joined such that They are Representing adjacent sides of triangle then there Resultant (sum) will be closing side of Triangle taken in opposite order.



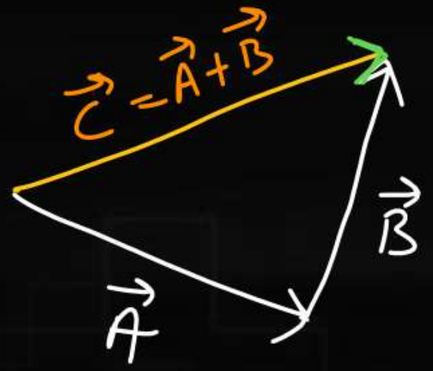
- Bachi hui Tail ko Tail se jodengey.
- " " Head ko Head " "

Draw Resultant Vector $\vec{C} = \vec{A} + \vec{B}$

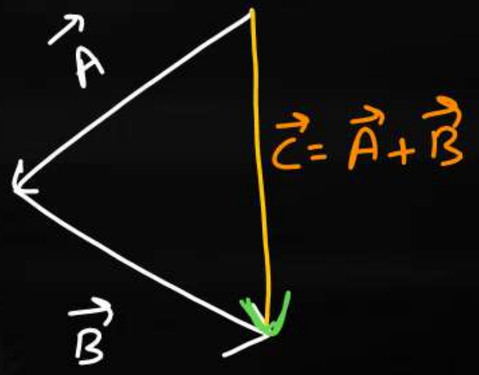
①



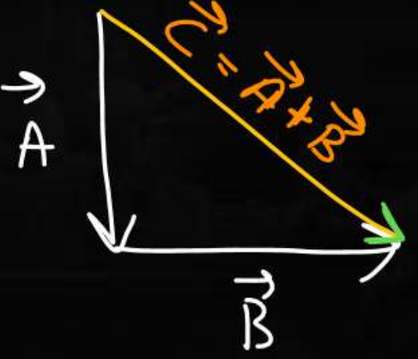
②



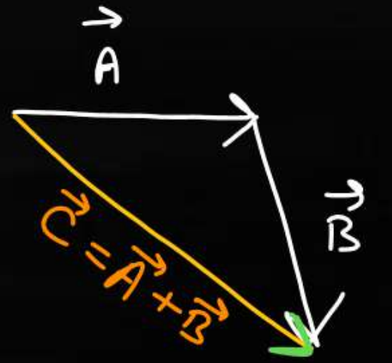
③



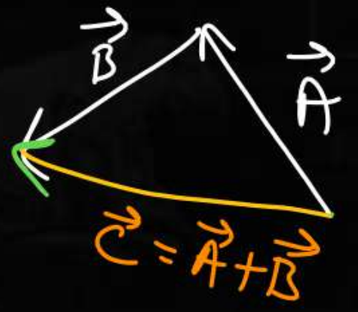
④



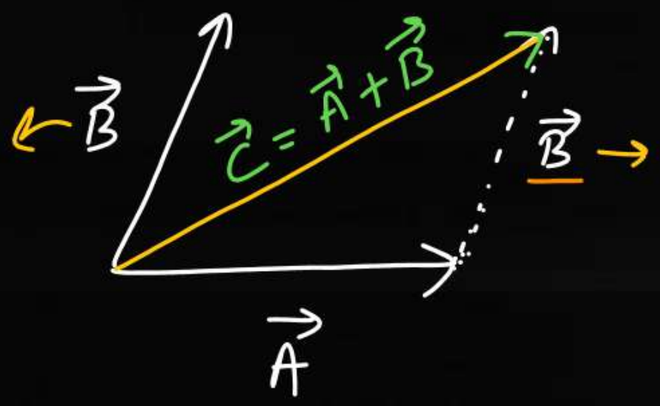
⑤



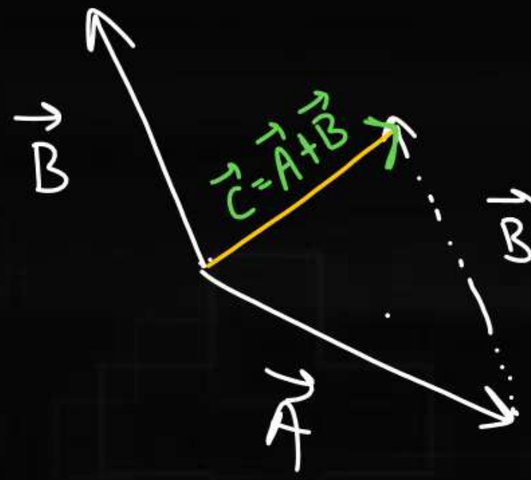
⑥



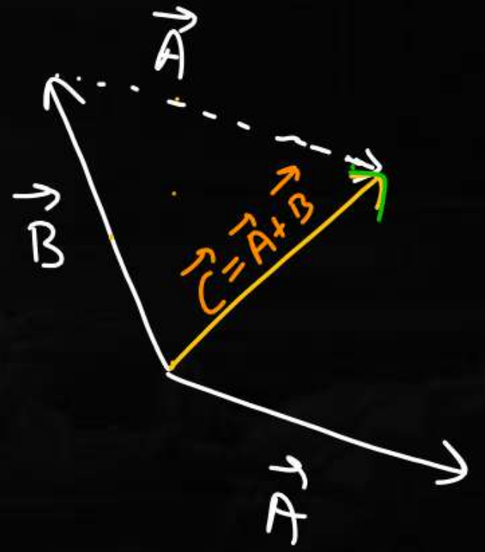
Orignal $\vec{B}$.



→ Parallely shifted Vector



Alternate Solution.



Parallelogram Law : When (T-T) or (H-H) Arrangement.

⇒ If two vectors are Representing Adjacent sides of Parallelogram then Resultant will be Diagonal of Parallelogram Passing through intersection of original Vectors.


THANK You