YAKEEN NEET 2.0

2026

Kinematics - - -

Motion in a straight line

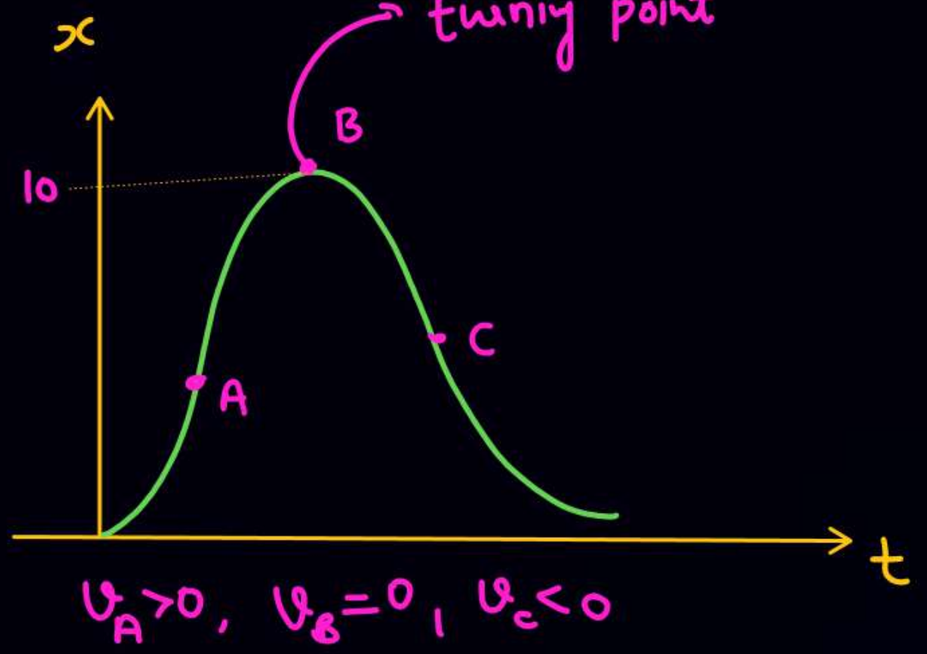
PHYSICS | Lecture - 06

By - Saleem Ahmed Sir

Todays Goal

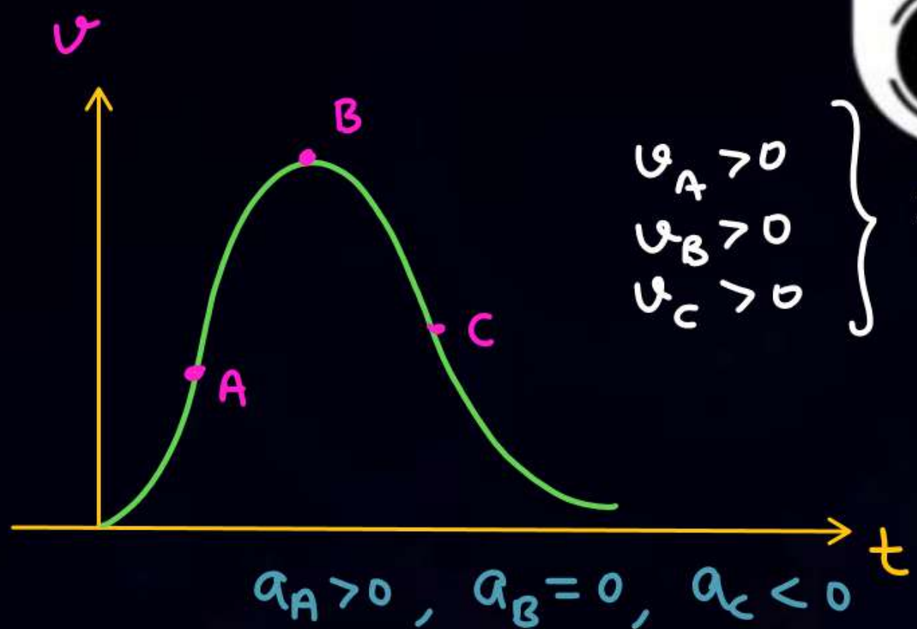
- Play with graph (x, u, a)

(1)



$v_A > 0,\ v_B = 0,\ v_C < 0$

(2)



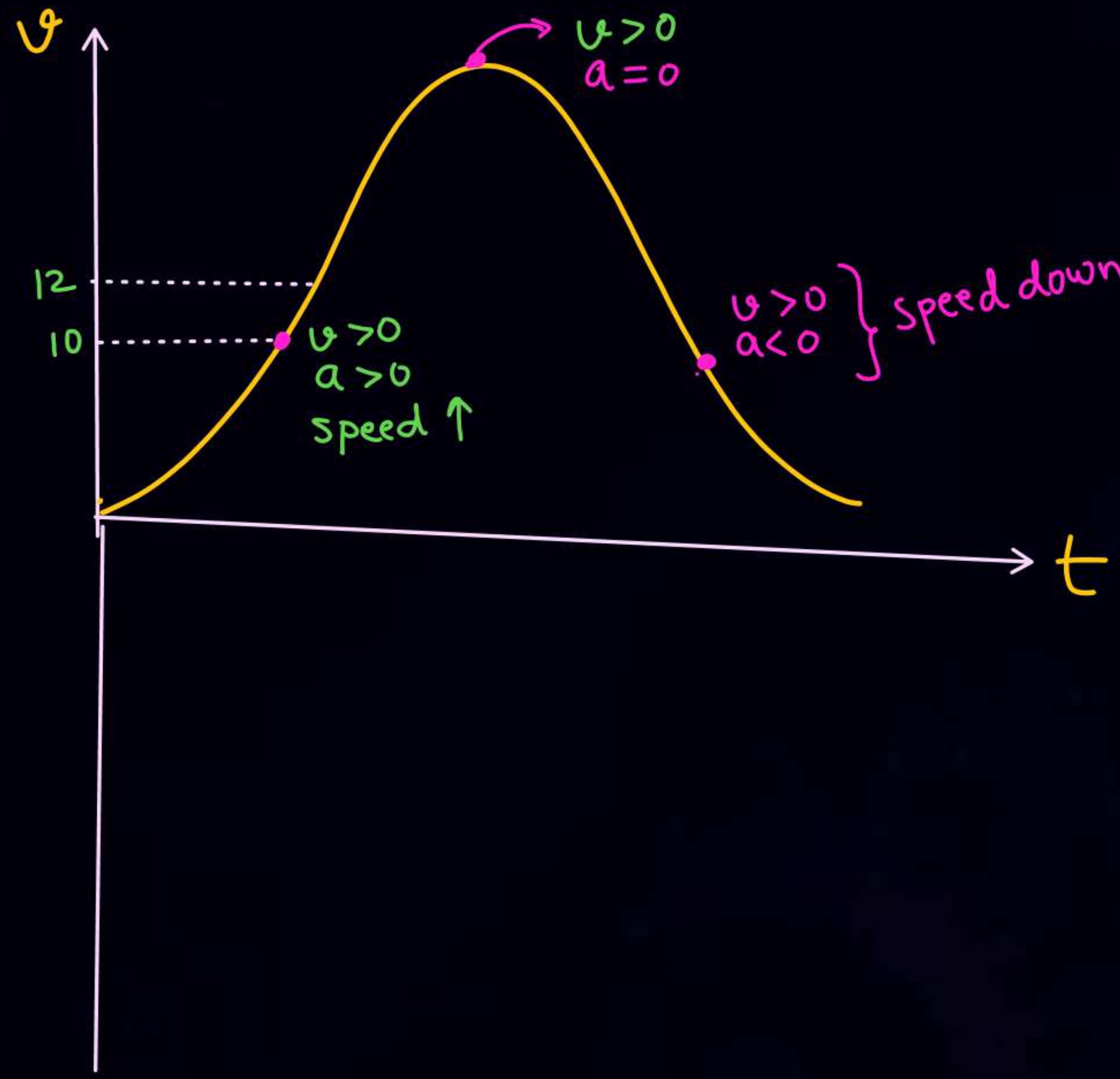
$v_A > 0$
$v_B > 0$
$v_C > 0$
} 1st quad

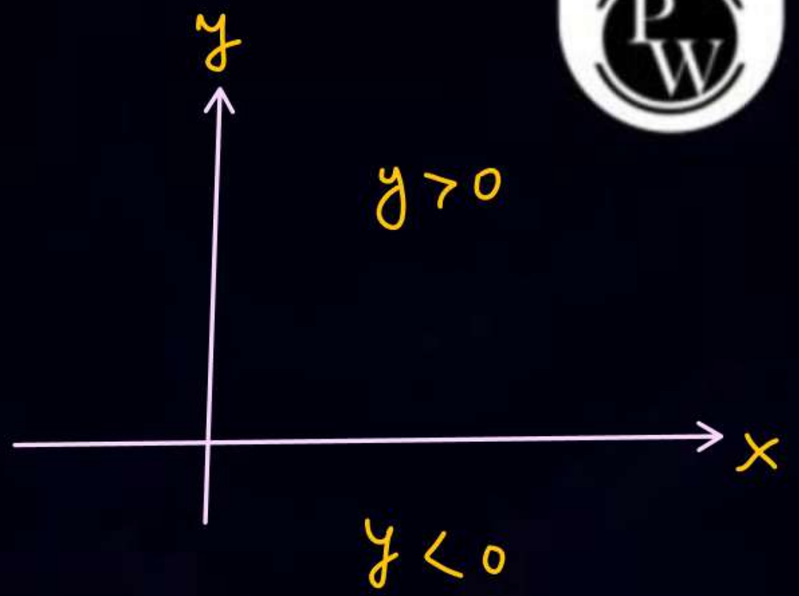
$a_A > 0,\ a_B = 0,\ a_C < 0$

Kasam hai tujhe ⇒ Sabse pahle ye dhyan se dekhna hai ki X-y Axis me kya given hai.

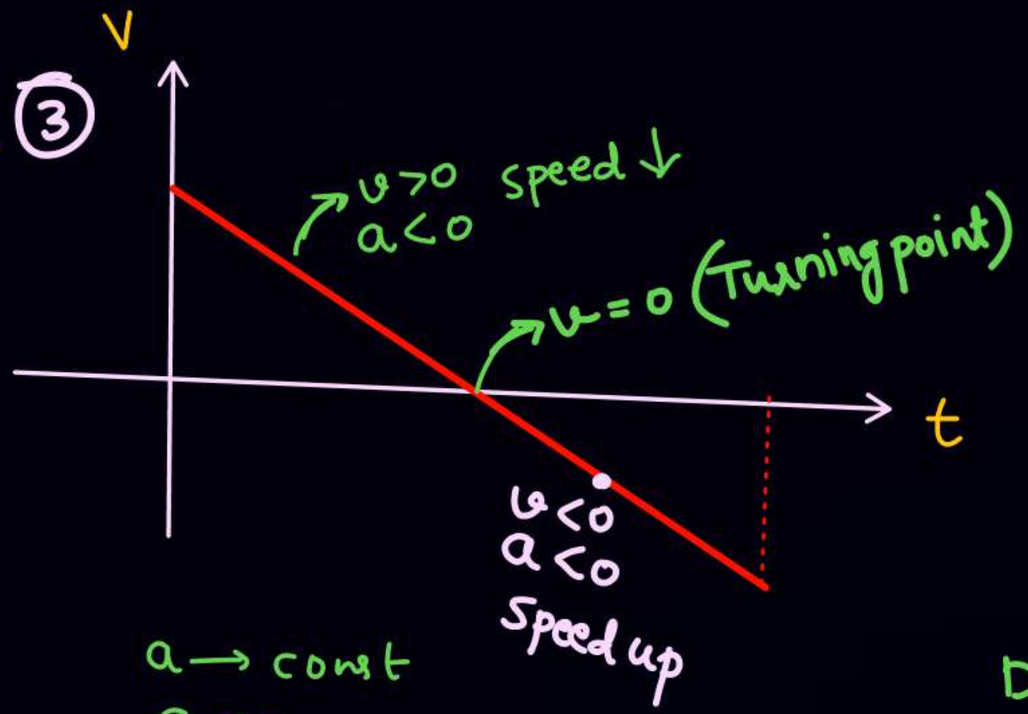
SKC

②

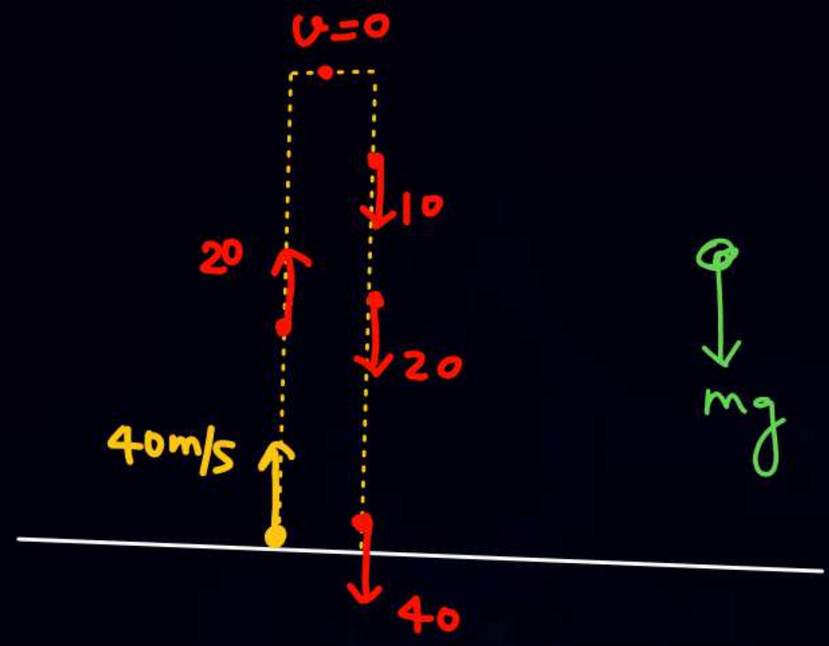




Q ③

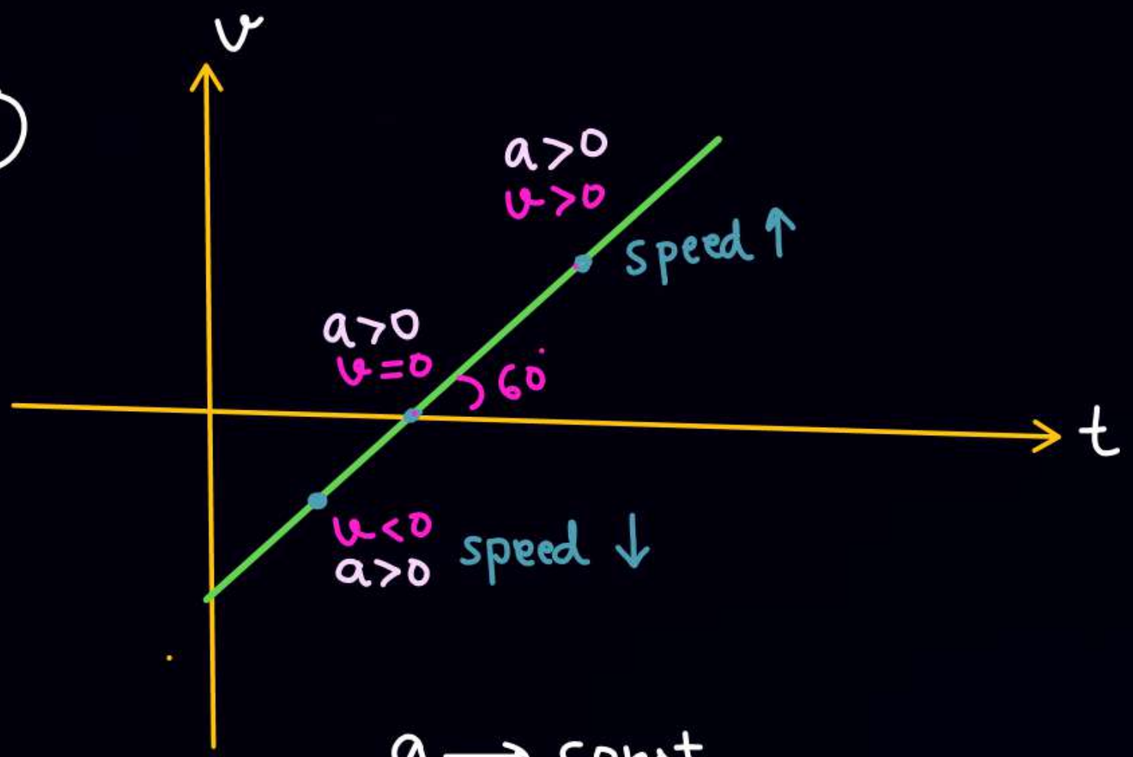


a → const
a < 0



Draw a-t Graph

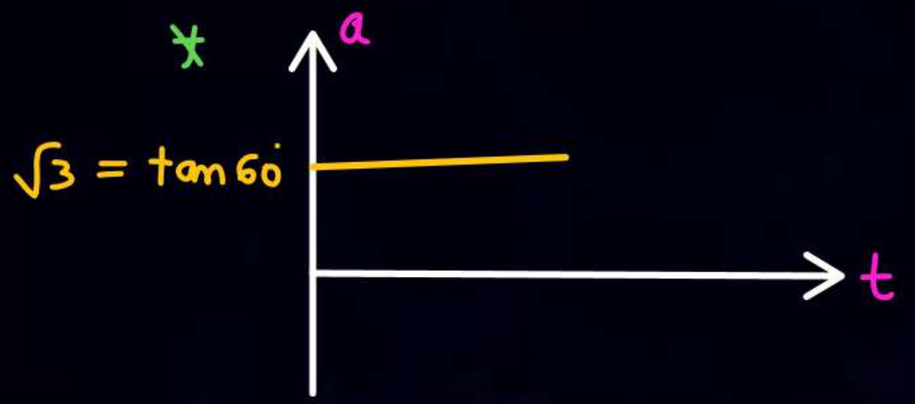
④



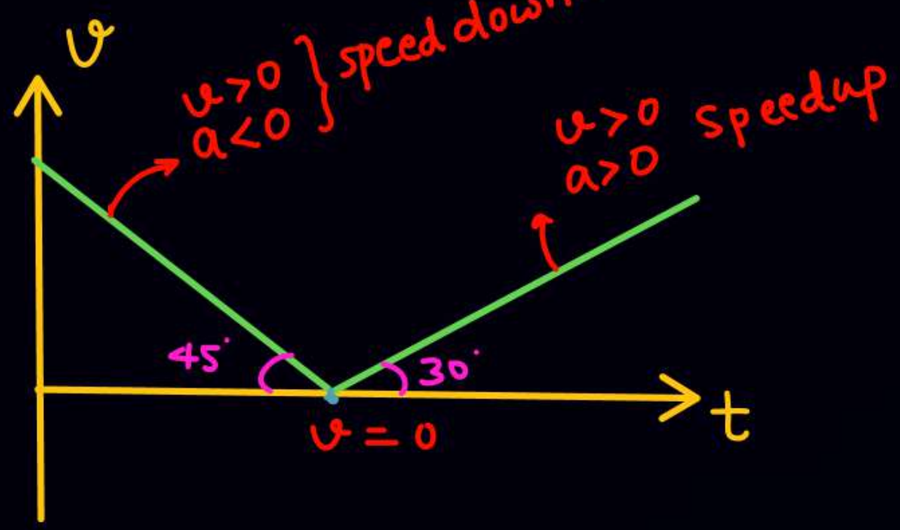
$a \longrightarrow$ const

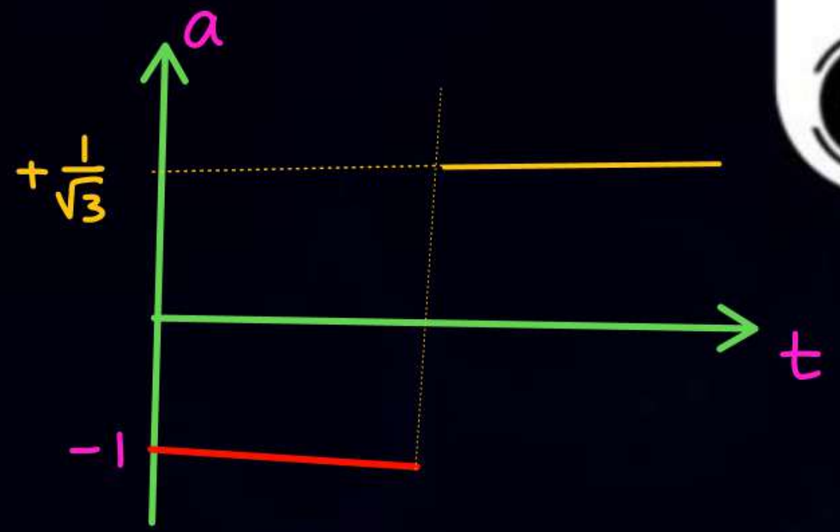
Slope >0, $a>0$

Draw a-t graph



(5)





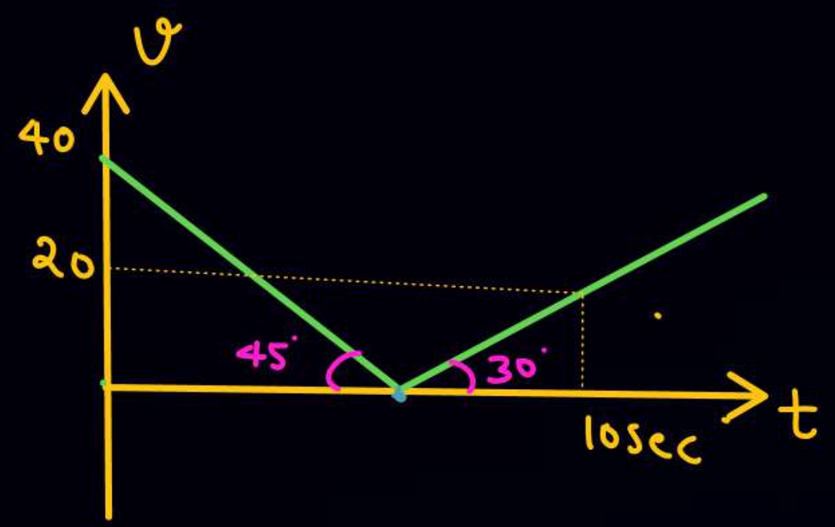
$v \geq 0$

No tuning point

(6)

Avrg acc from $t = 0$ to $t = 10\text{sec}$ =

(6)



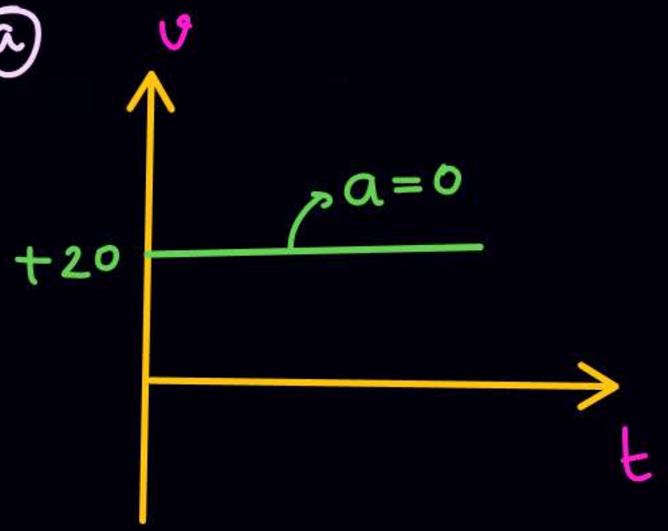
$$\langle \vec{a} \rangle = \frac{\vec{v}_f - \vec{v}_i}{\text{time}} = \frac{20 - 40}{10 - 0}$$

$$= -2$$

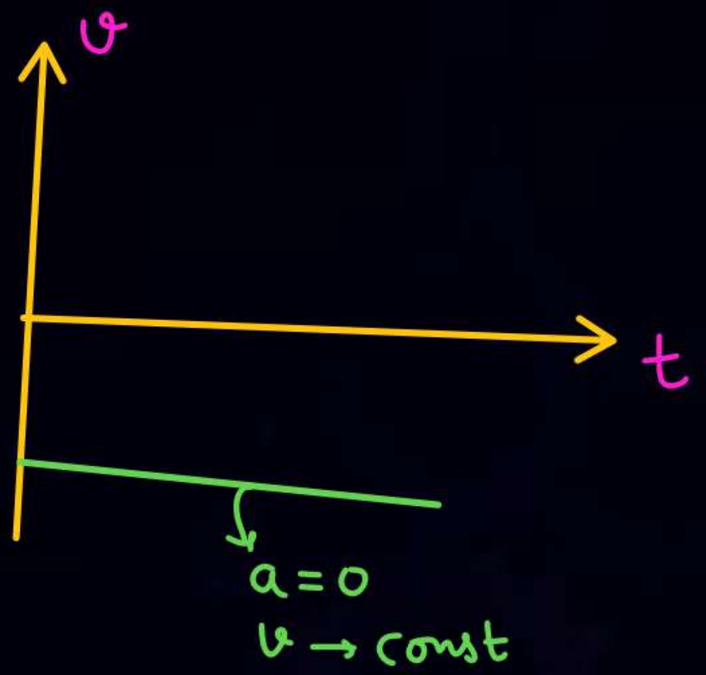
Avg acc from $t = 0$ to $t = 10\text{sec}$ $= \dfrac{20 - 40}{10} = -2$

(7)

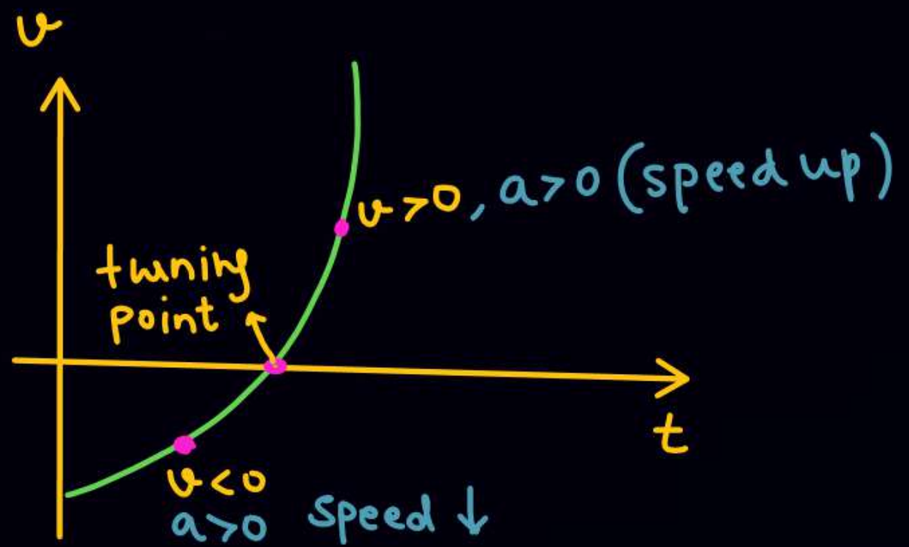
(a)



(b)

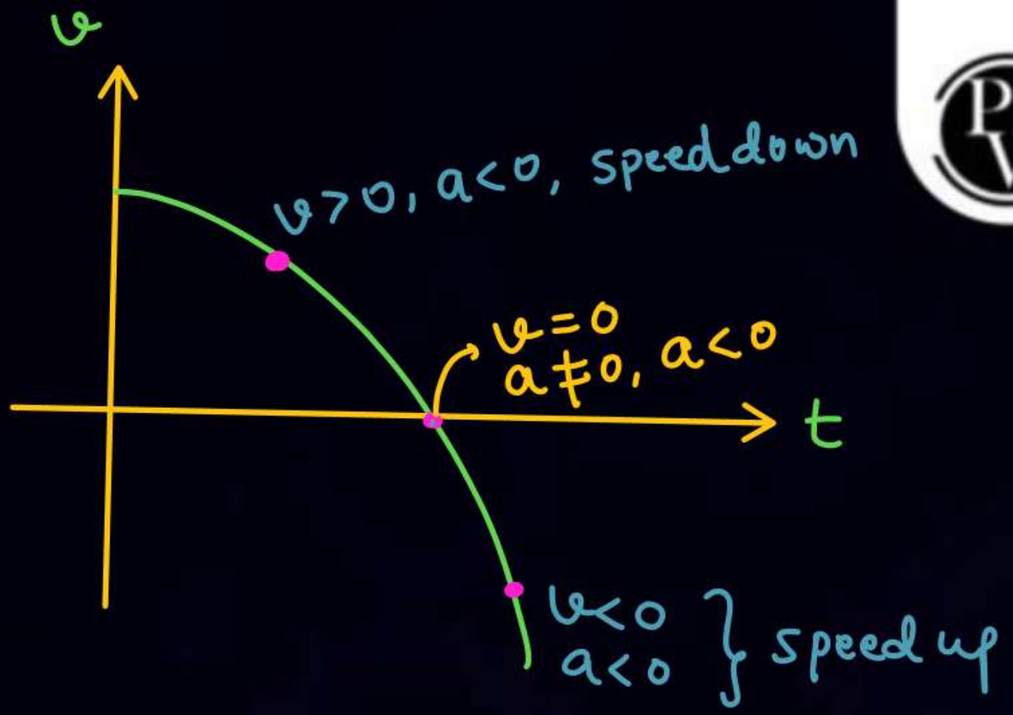


(8)



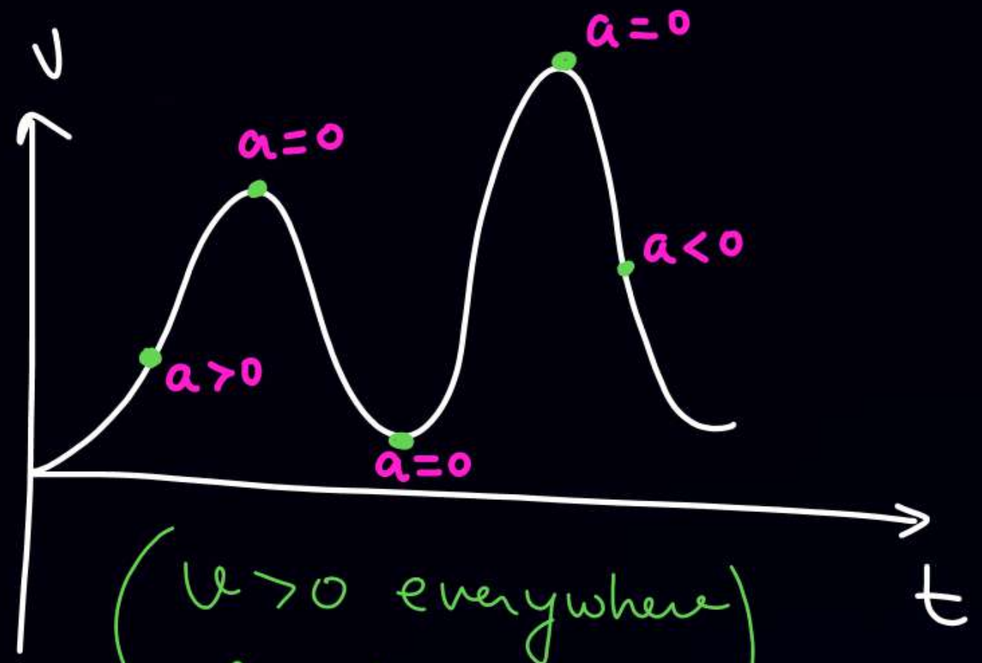
a const Nahi hai
bcz (V-t) not st. line

(9)



a const Nahi hai
bcz (V-t) not st. line

(10)



($v > 0$ everywhere except $t = 0$)

1st quad

Distance = |Displacement|

(11)

two turning point

Distance > |displacement|

Adv. level

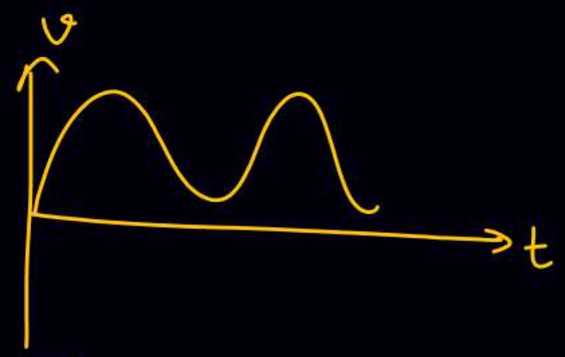
SSSQ

(12)

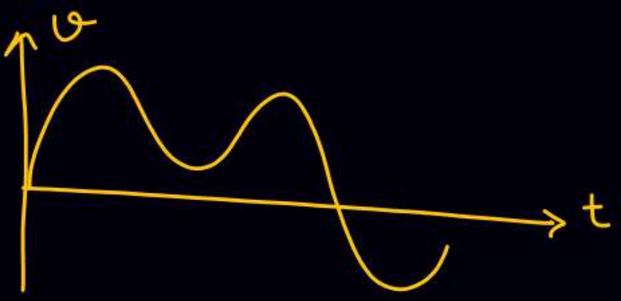
H.W

ghapar note

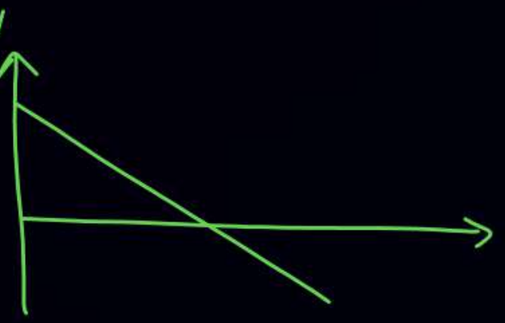
(A)



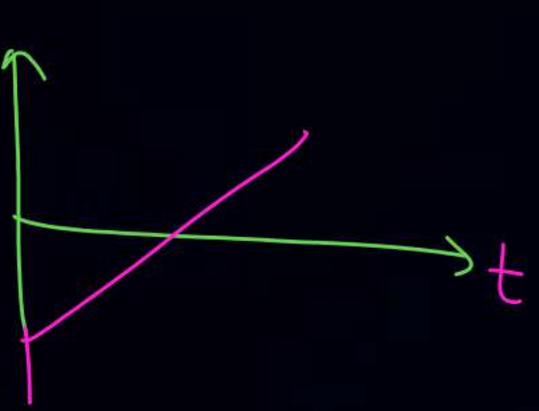
(B)



(C)



(d)



(P) distance = |Displacement|

(Q) distance > |Displacement|

(R) Avg speed = |Avg velocity|

(S) Avg speed > |Avg velocity|

(T) Inst. speed = |Inst. velocity|

Ans ⇒

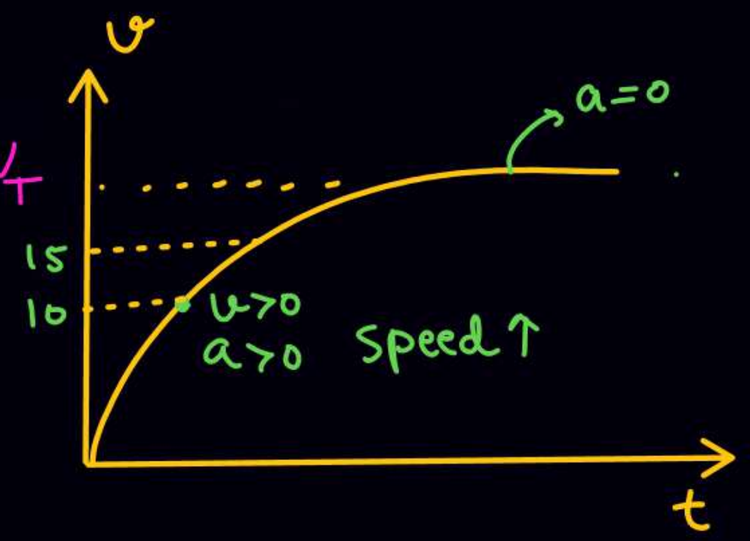
(A) P, R, T

(B) Q, S, T

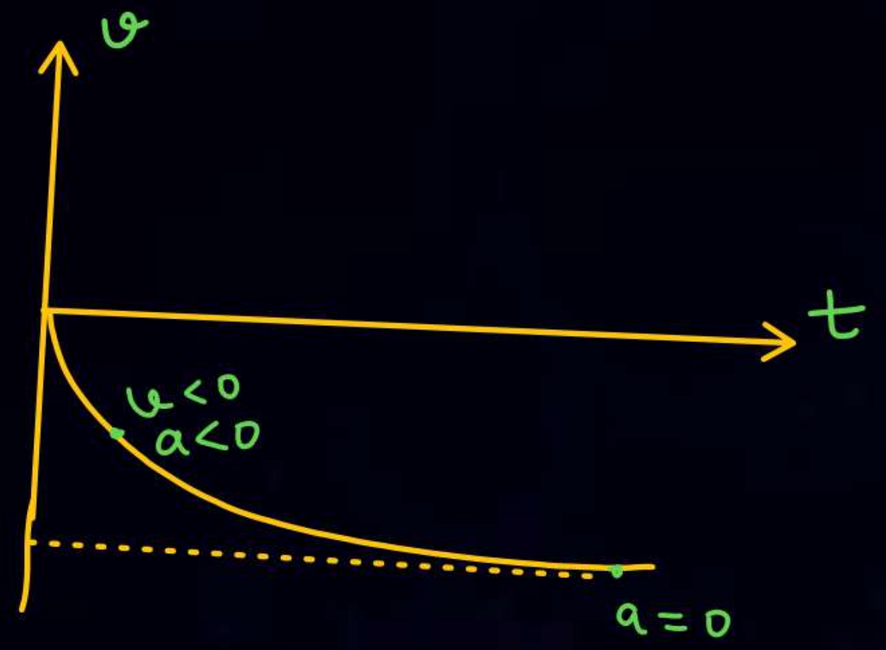
(C) Q, S, T

(d) Q S T

(13)

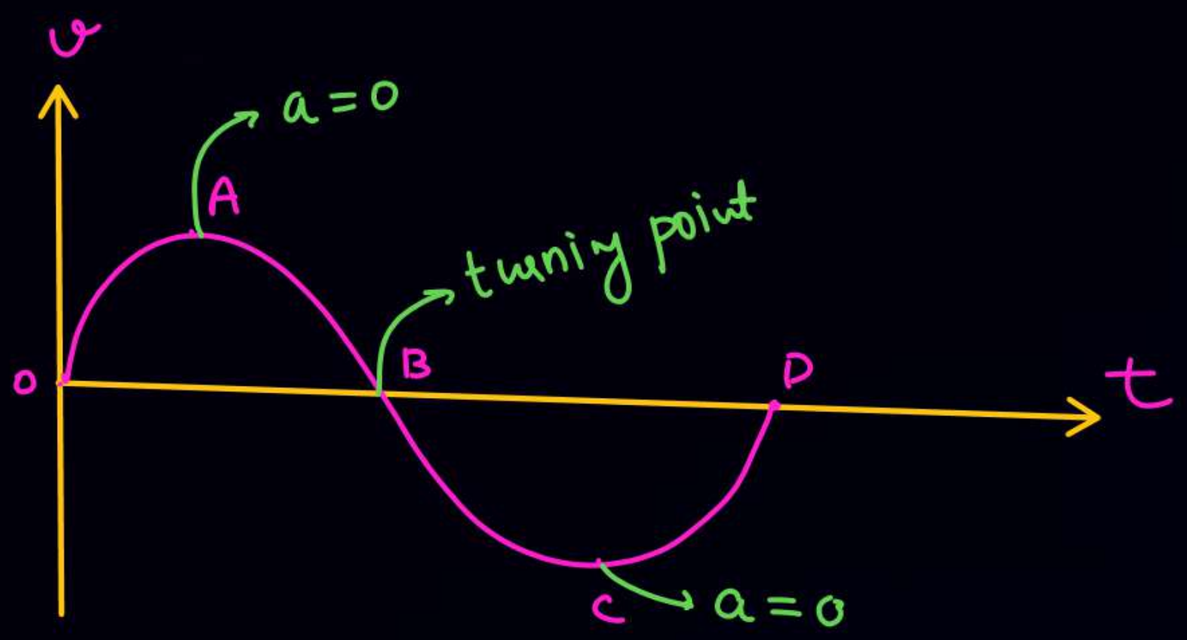


(14)



Be careful.

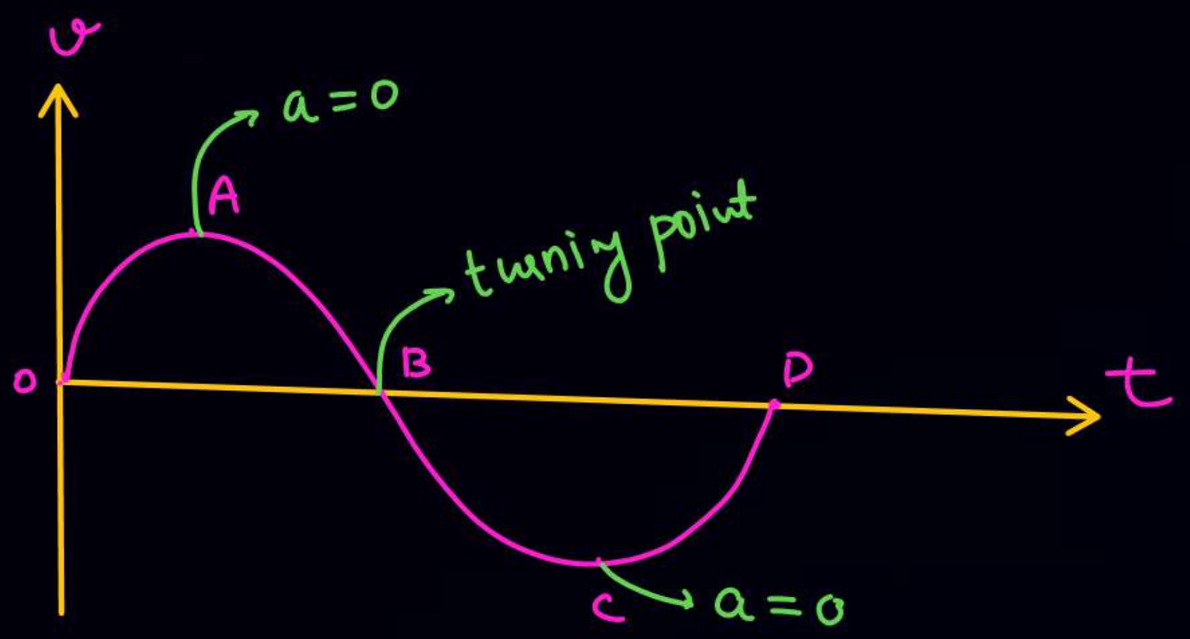
(16)



$(O \longrightarrow A)$	$v > 0$,	$a > 0$	speed up
$(A \longrightarrow B)$	$v > 0$	$a < 0$	speed down
$(B \longrightarrow C)$	$v < 0$	$a < 0$	speed up
$(C \longrightarrow D)$	$v < 0$	$a > 0$	speed down

Be careful.

(16)



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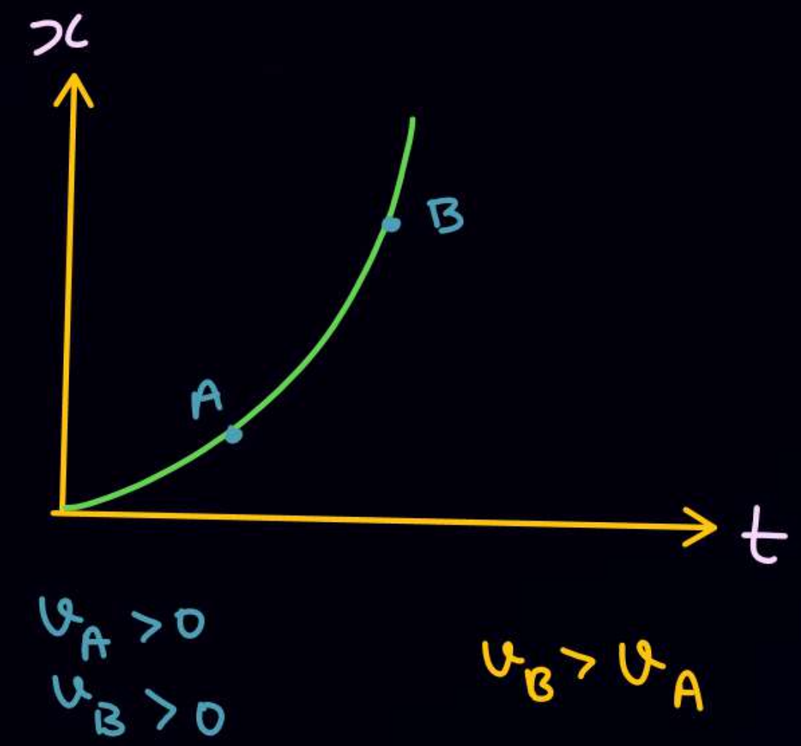
$(C \longrightarrow D)$	$v < 0$	$a > 0$	speed down

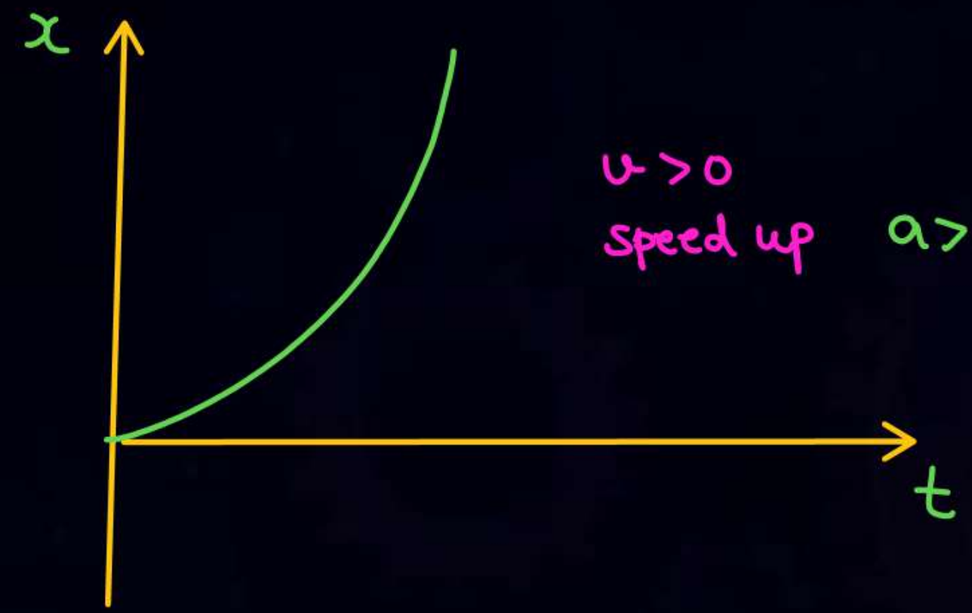
(17)



$v_A > 0$
$v_B > 0$

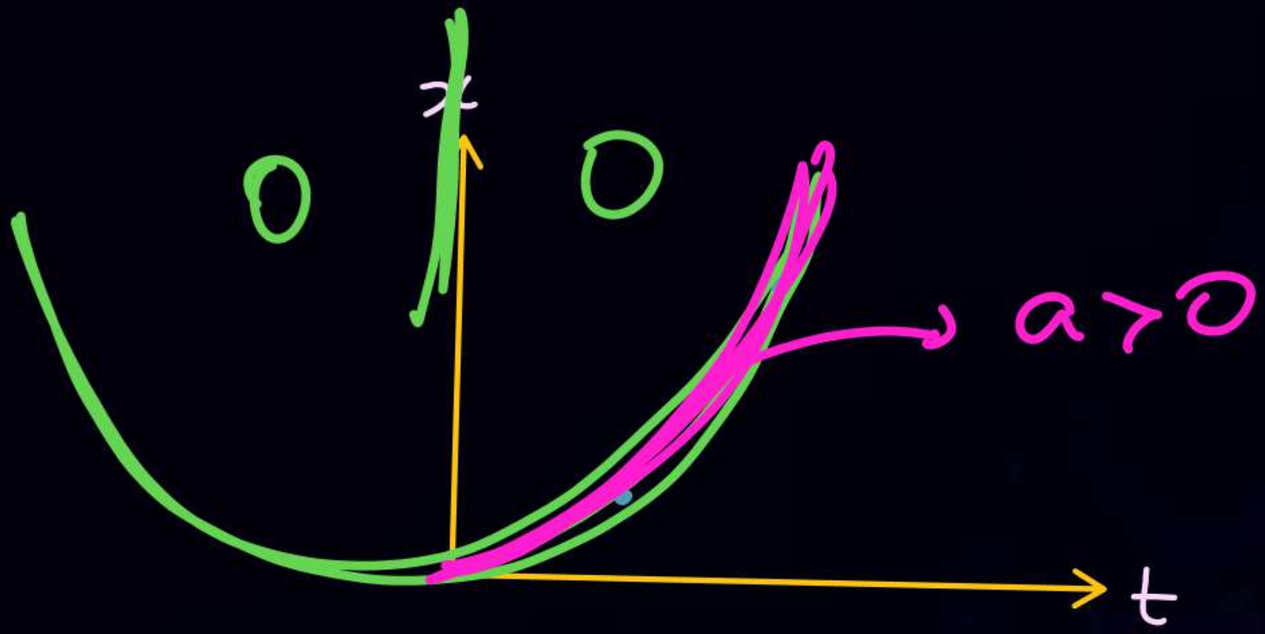
$v_B > v_A$

(x-t) Graph Ka slope ≡ v Dega

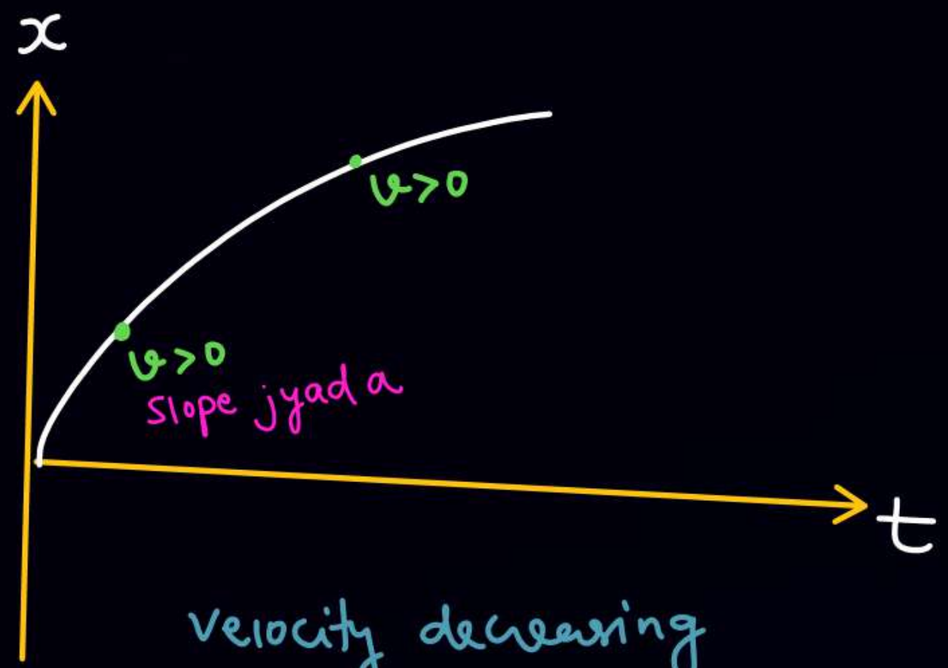


$v > 0$
speed up $a > 0$

(17)



(18)



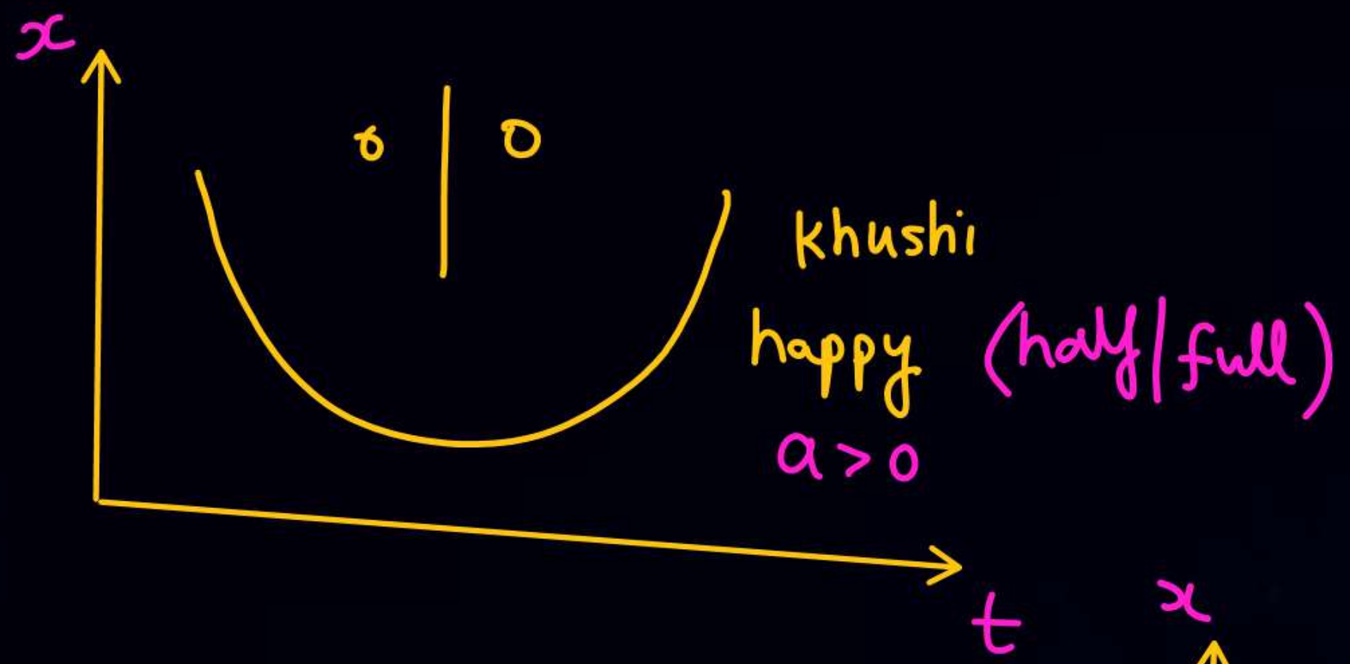
velocity decreasing

Speed down

$v > 0$, $a < 0$

SKC

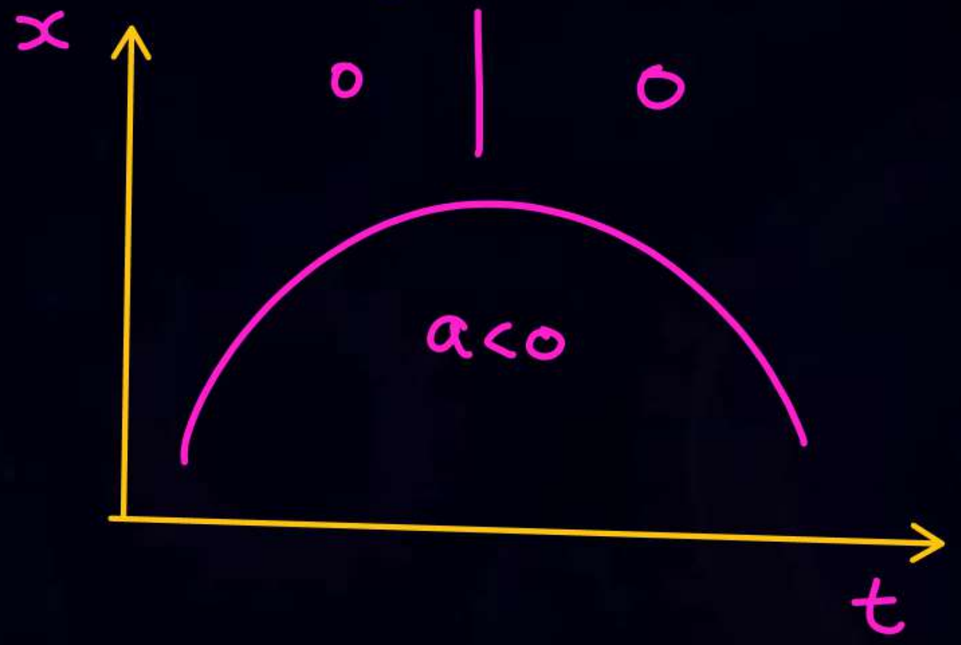
** ye chez only & only (x-t) graph se acc ka sign pata karne ke liye hai

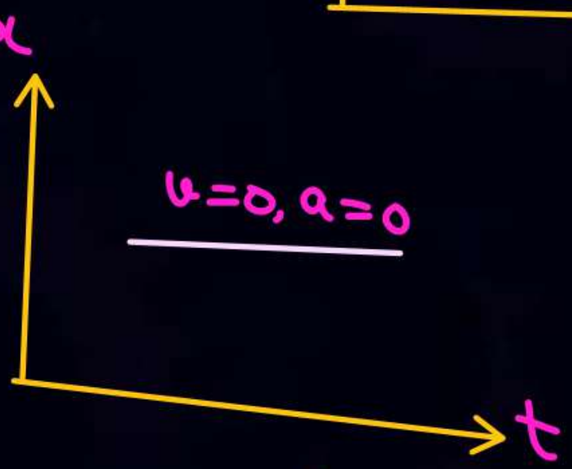


khushi

happy (half/full)

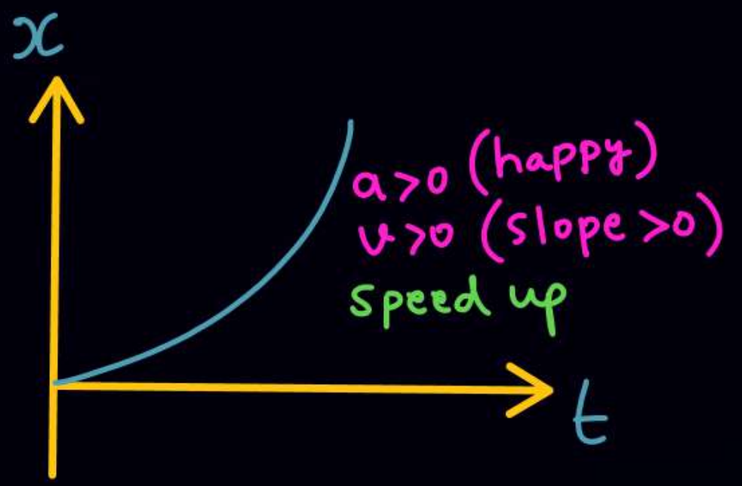
$a > 0$



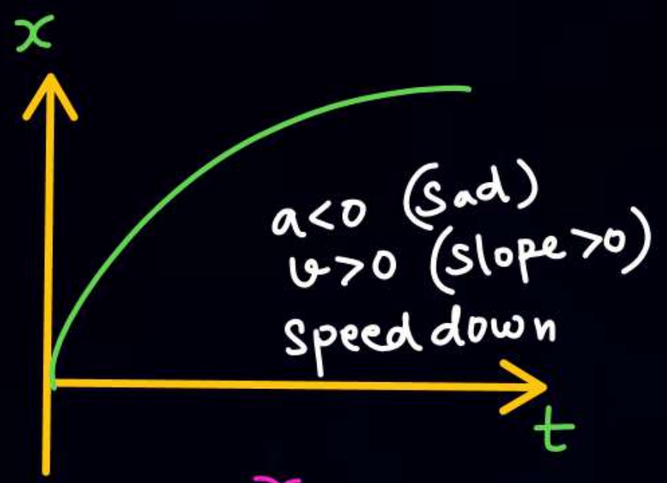


$v = 0, a = 0$

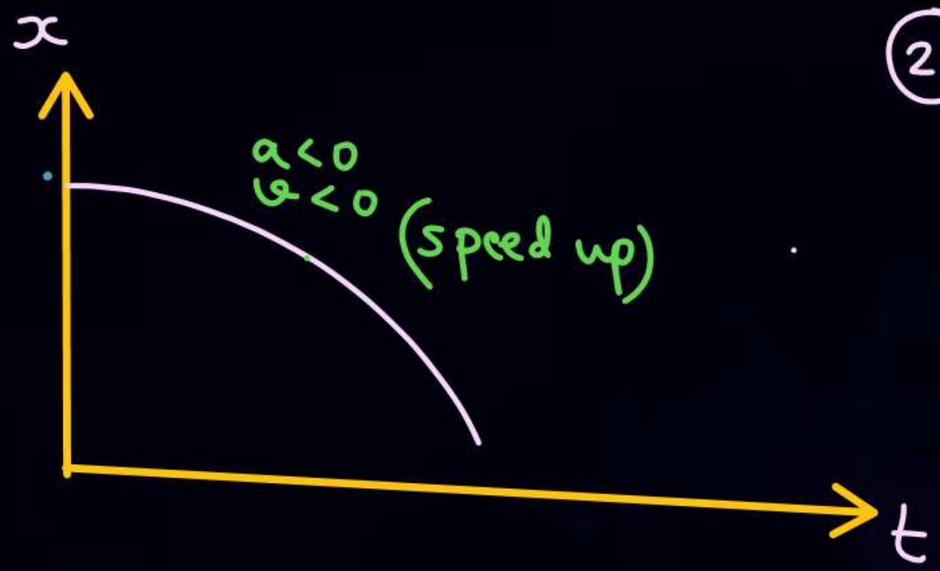
(19) (a)


x
t
a>0 (happy)
v>0 (slope>0)
speed up

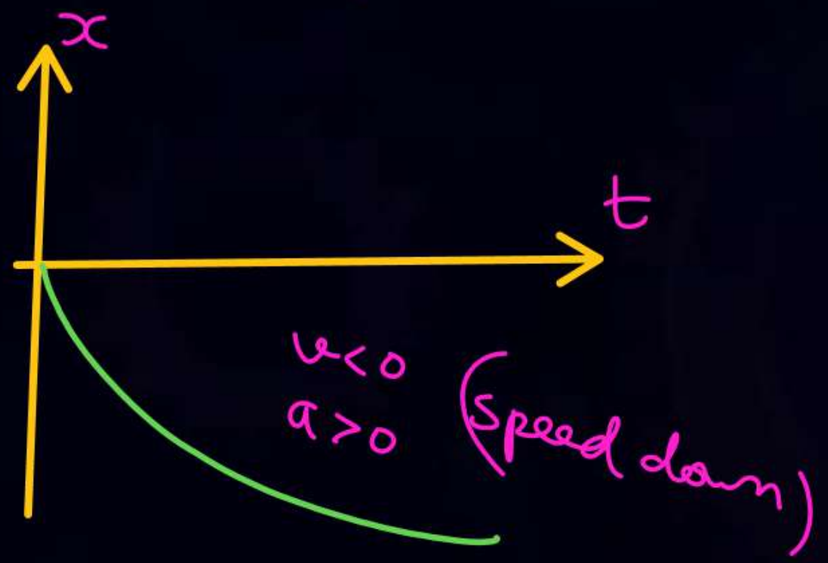
(b)


x
t
a<0 (sad)
v>0 (slope>0)
speed down

(20)


x
t
a<0
v<0 (speed up)

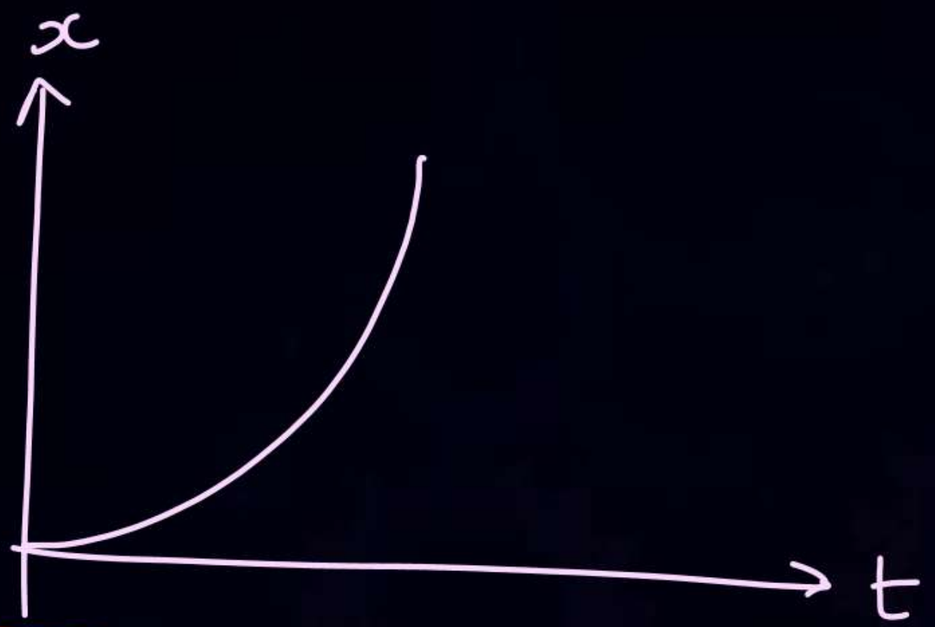
(21)


x
t
v<0
a>0 (speed down)

(22) $x = t^2$ (parabola)

$v = \frac{dx}{dt} = 2t$ (st. line)

$a = 2$, $a > 0$, $a = \text{const}$



(**) If

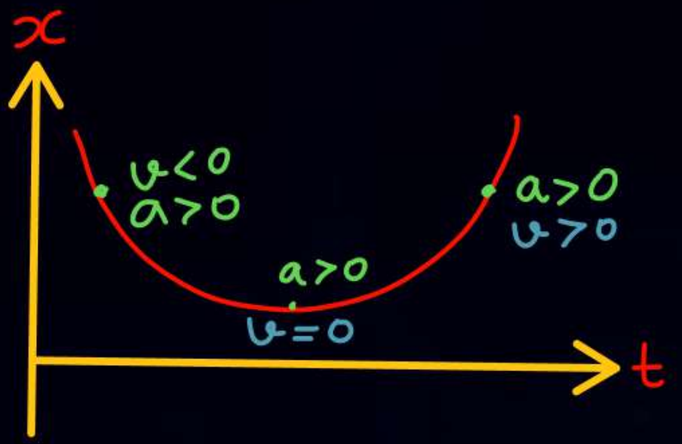
$a = \text{const} \rightarrow (v\text{-}t)_{\text{st-line}} \rightarrow (x\text{-}t)_{\text{parabola}}$.

Khusi

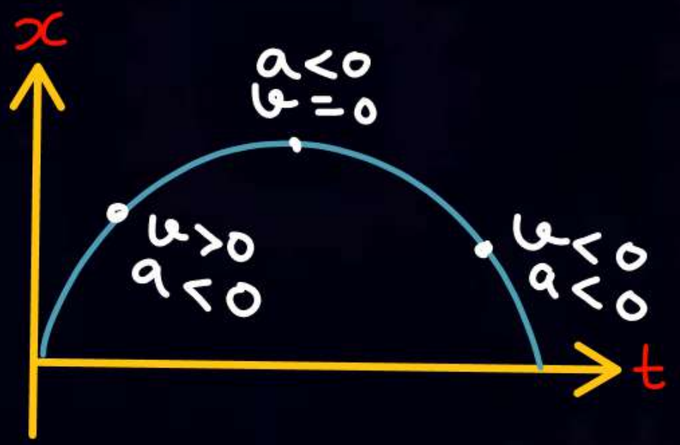
Dukhi.

(23)

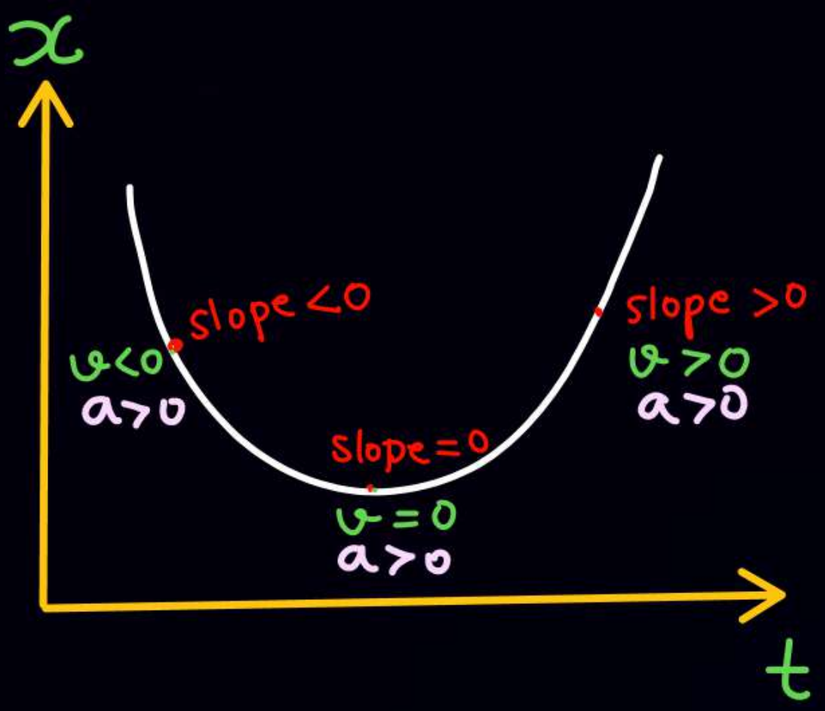
(24)



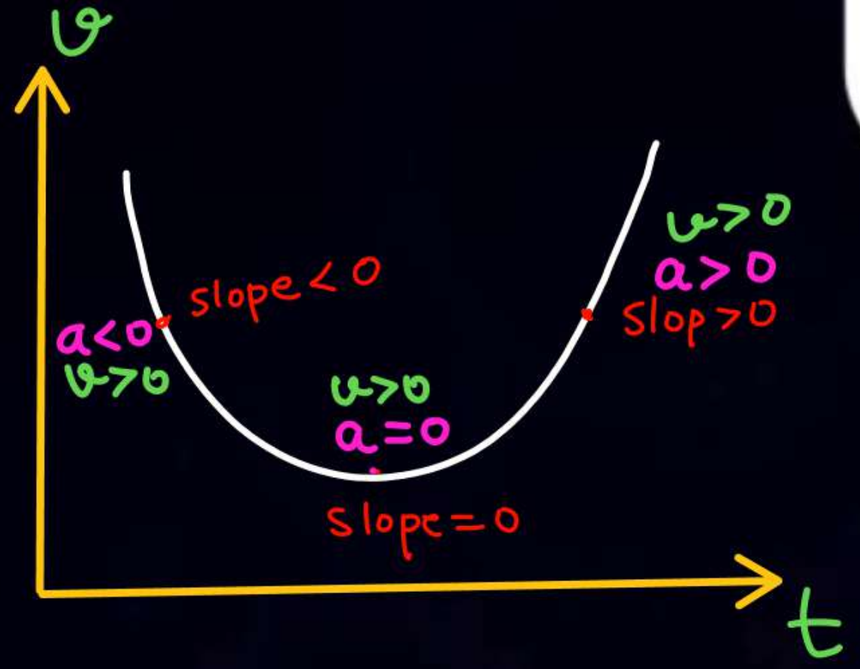
(25)



(26)



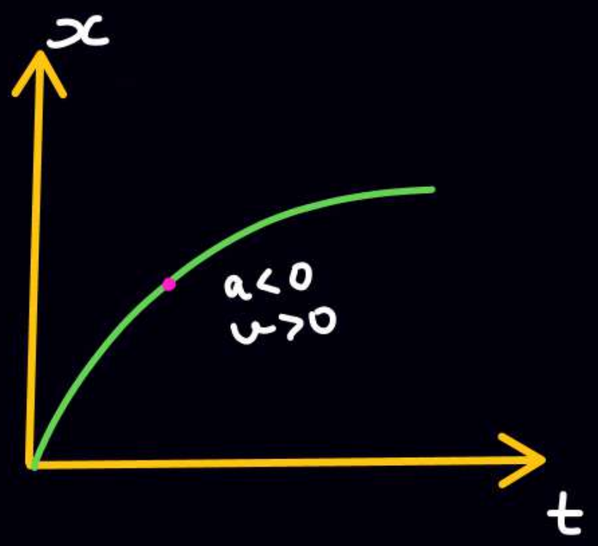
* $v \Rightarrow$ slope
* $a \Rightarrow$ khusi/Dukhi

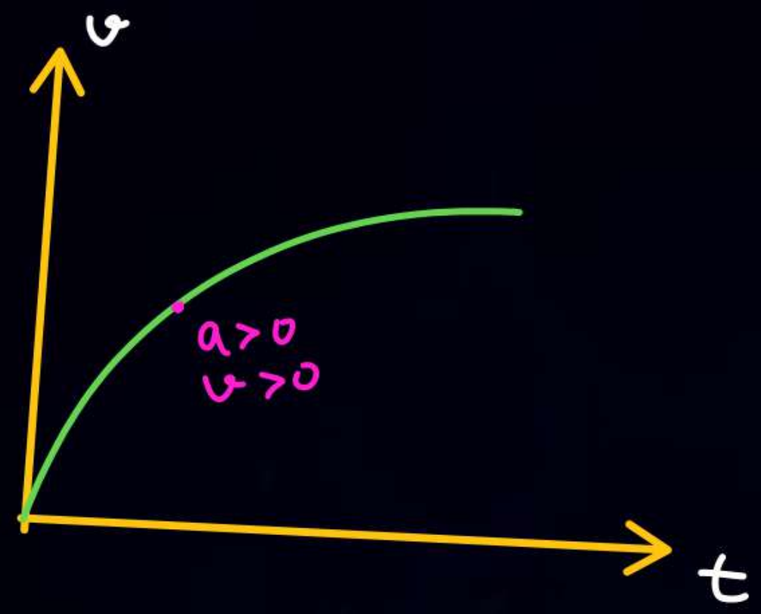


Slope $\Rightarrow$ acc

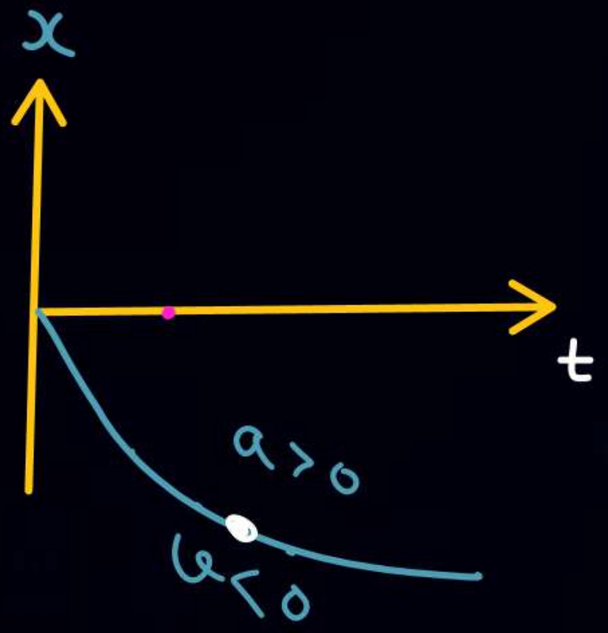
$v \Rightarrow I^{st}$ quad. ; $v > 0$

27

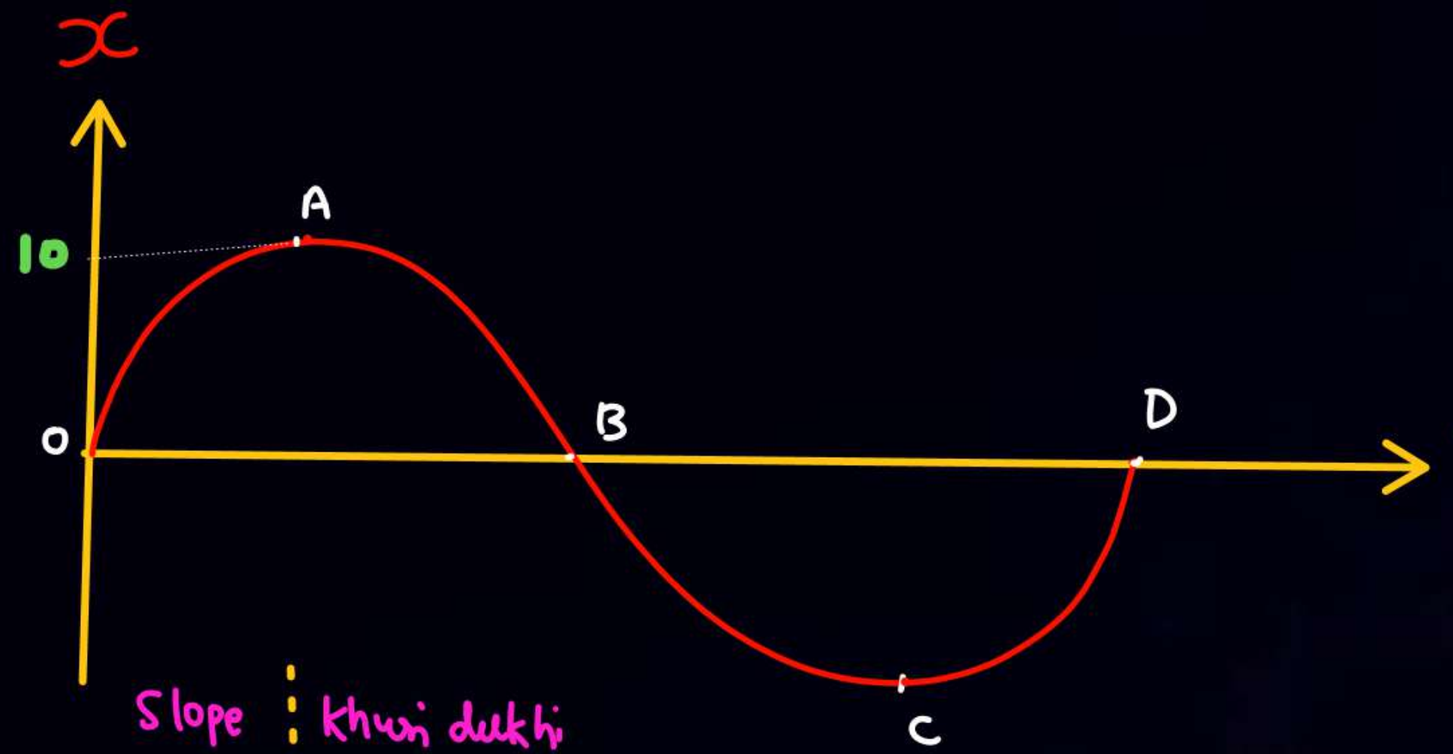




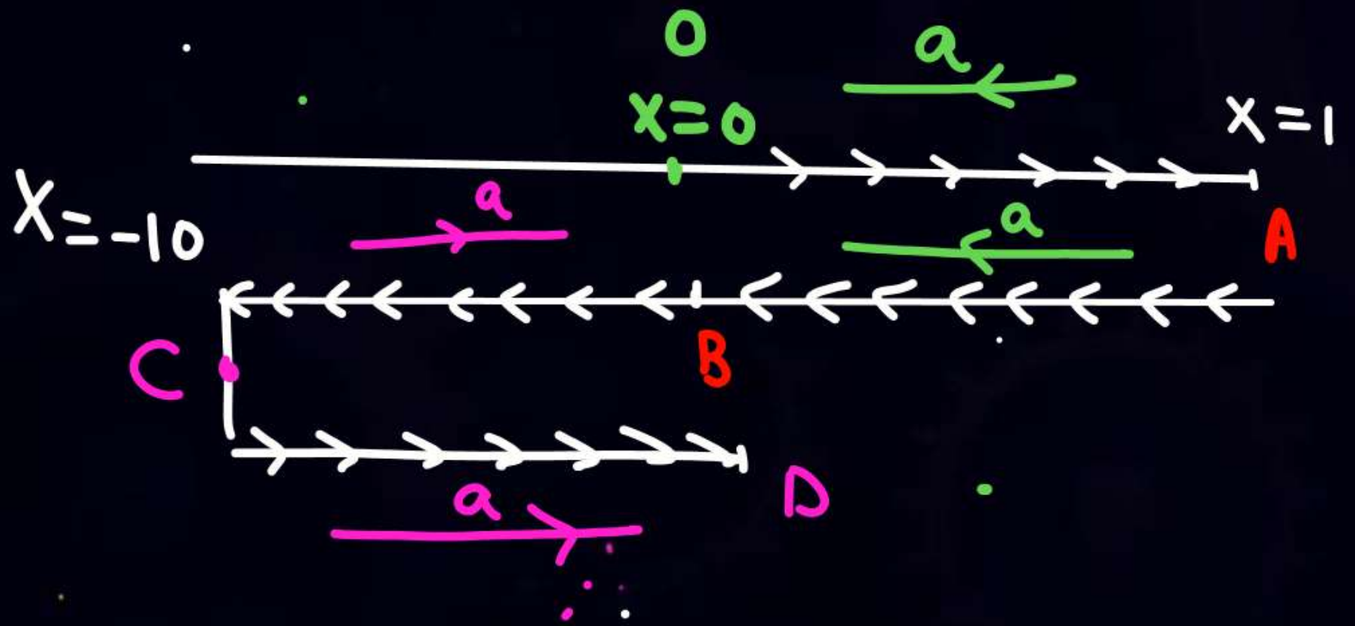
28

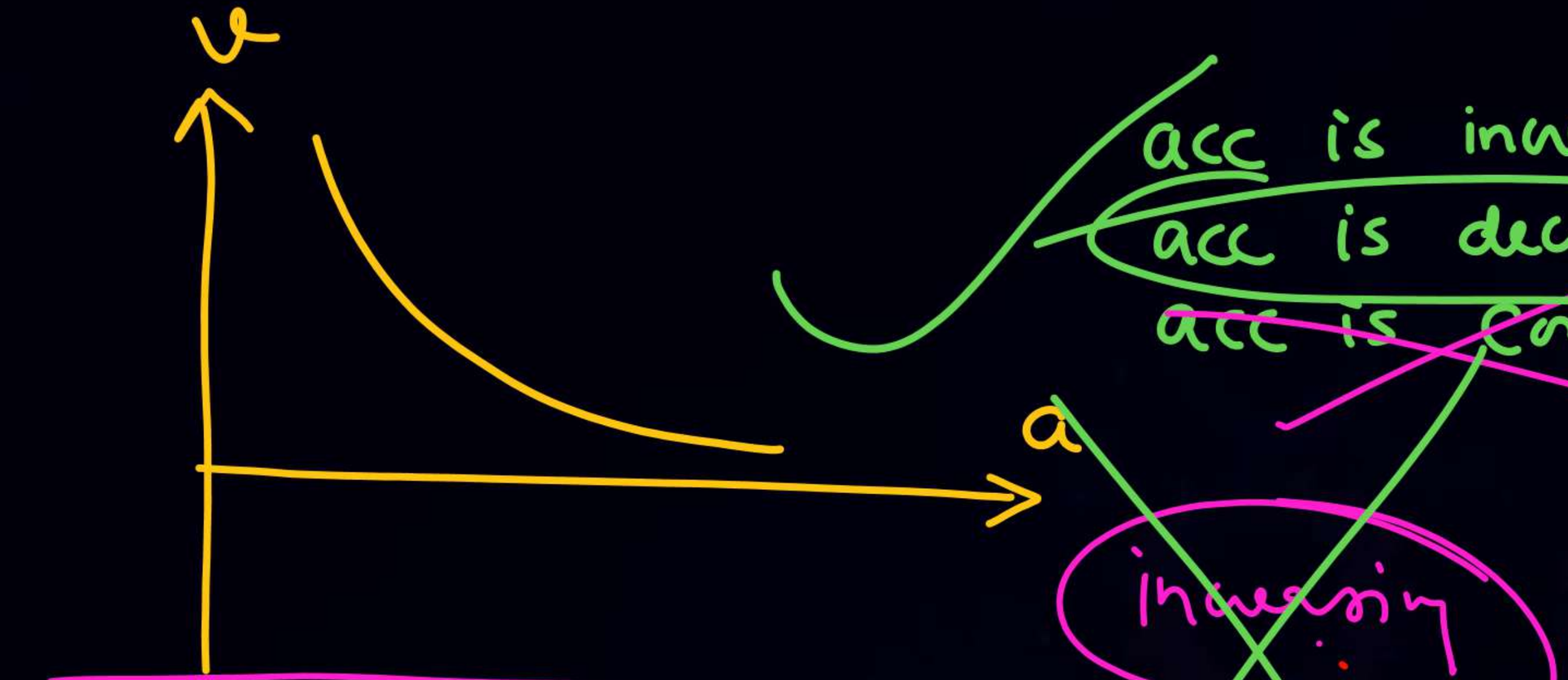


(29)



	Slope	Kuch dukh
$(O \to A) \Rightarrow$	$v>0$,	$a<0$
$(A \to B) \Rightarrow$	$v<0$	$a<0$
$(B \to C) \Rightarrow$	$v<0$	$a>0$
$(C - D) \Rightarrow$	$v>0$	$a>0$





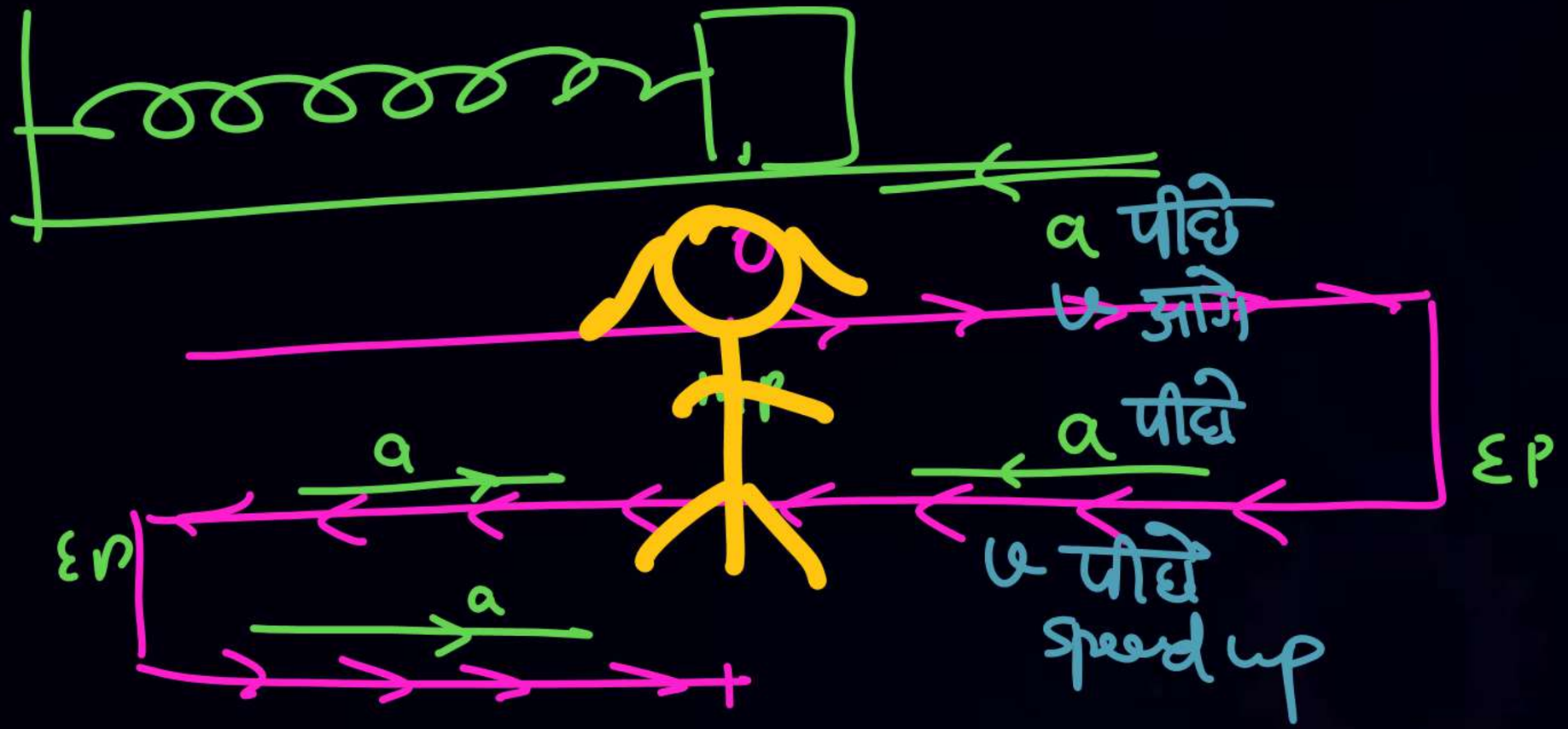
acc is increasing

acc is decreasing

acc is const.

increasing

Retardation ≡ speed down


a पीछे
v आगे
a पीछे
a
EP
a
EP
v पीछे
speed up

काम का सबक (SKC Box)

1D

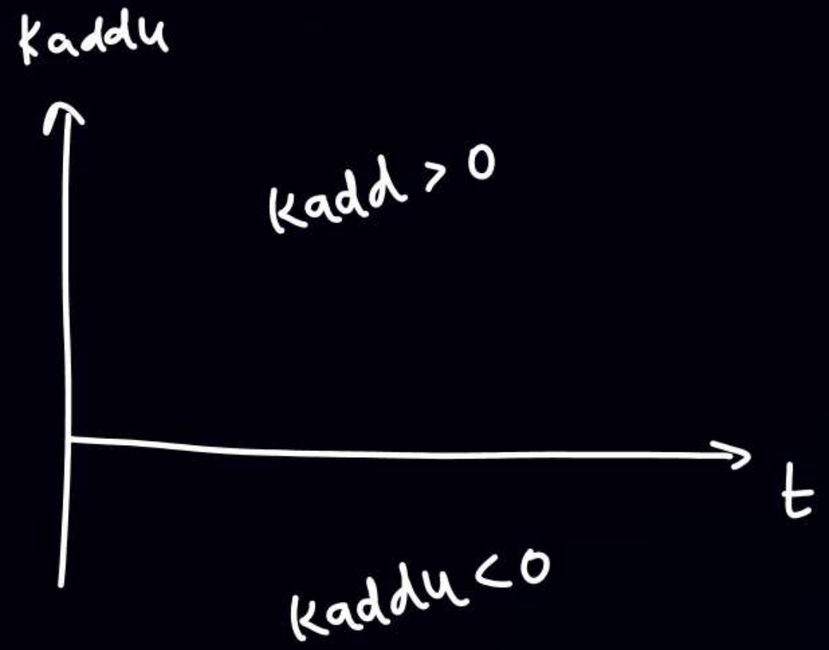
** $\vec{v}$, $\vec{a}$ ka sign same hoga ⟶ Speed up, Speed increase

** ,, ,, opposite ⟶ Speed down, Speed decrease, slow down

** If (v-t) graph st. line ⟶ a const hoga aur slope ke barabar hoga

** If $\vec{v}$ = const, ⇒ a = 0 **SKC***** Agar Velocity Badal Rahi hai to matlab acc hai

(*** VVVI SKC) Agar (x-t) Graph given hai to Velocity ke liye Slope dekho aur acc ke Sign ke liye Khusi/Dukhi Dekho.


kaddu
kadd > 0
t
kaddu < 0

Join

Homework

- DPP 03, 04, 05 (enough for today)
  - (27 ques) ≡ try to solve in (30 - 40) min
- Revise all kinematics notes

THANK YOU