

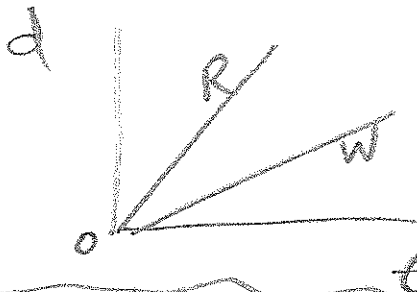
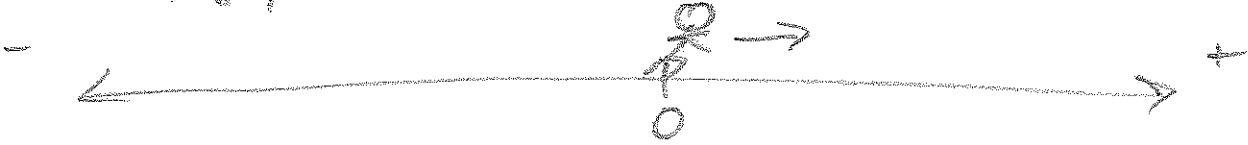
d vs. t GRAPHS

$$\vec{V} = \frac{\vec{d}}{t}$$

Slope of a d-t graph is velocity

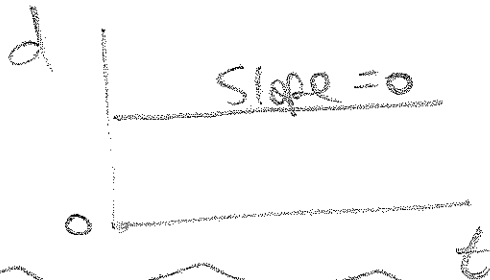
$$V = \frac{\Delta d}{\Delta t} = \frac{d_2 - d_1}{t_2 - t_1} = \text{Slope}$$

① WALKING & RUNNING EAST



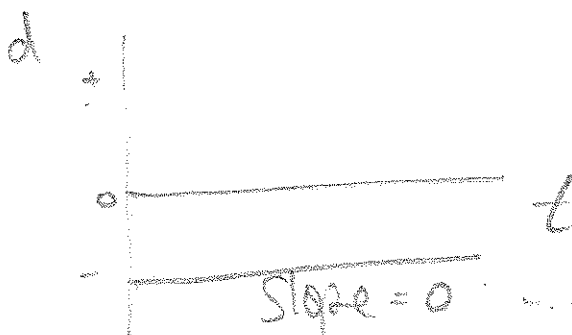
both slopes are \oplus
So V is \oplus

② STANDING EAST OF O.



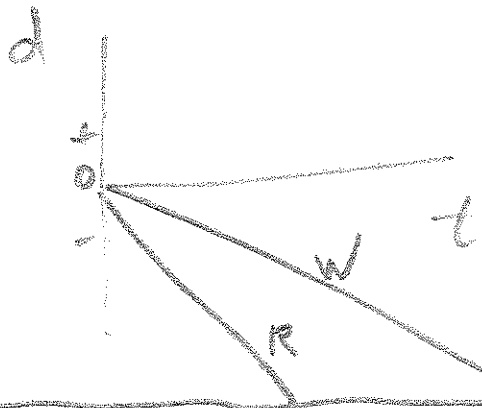
dis \oplus
 V is 0

③ STANDING WEST OF O.



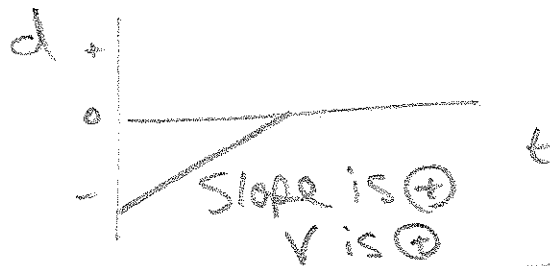
dis \ominus
 V is 0

④ WALKING / RUNNING WEST



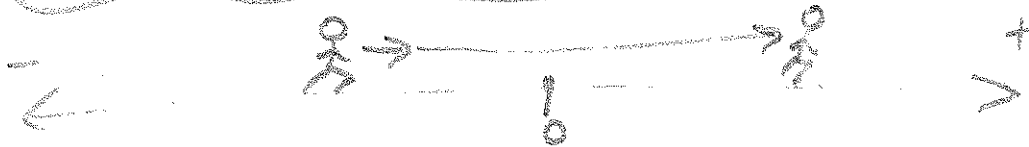
Slopes are \ominus
So V is \ominus

⑤ WALKING EAST STARTING WEST OF 0.



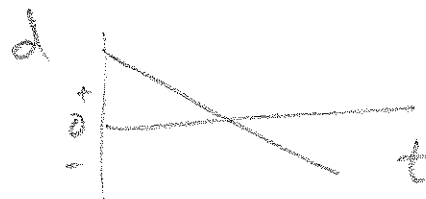
Slope is \oplus
 V is \oplus

⑥ WALKING EAST STARTING WEST OF 0; PAST 0



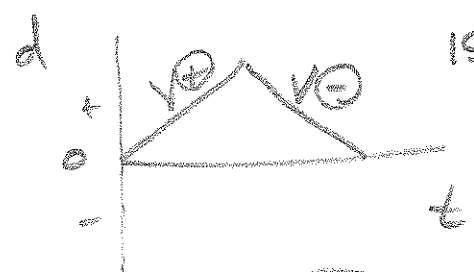
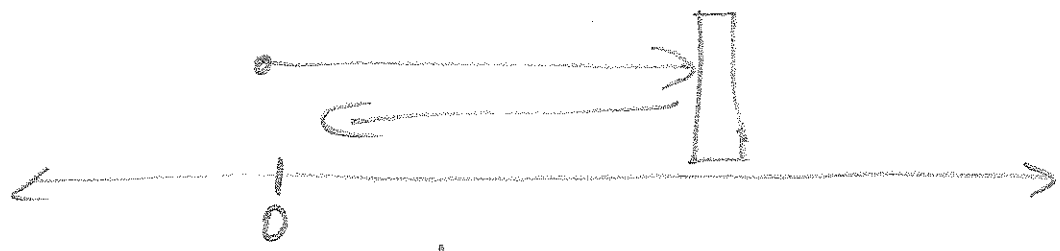
Slope is \oplus
 V is \oplus

⑦ WALKING WEST STARTING EAST OF 0; PAST 0



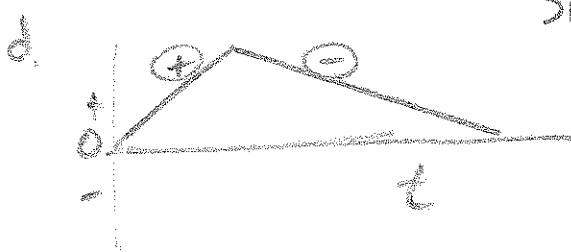
Slope is \ominus
 V is \ominus

8. SUPER BALL OVER TO WALL & BACK



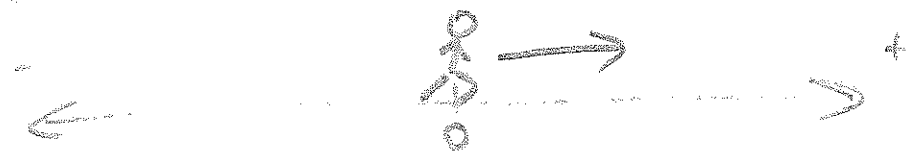
ISOSCELES TRIANGLE
 SLOPE \oplus over
 " \ominus back
 NO ENERGY LOSS.

9. BASEBALL OVER AND BACK

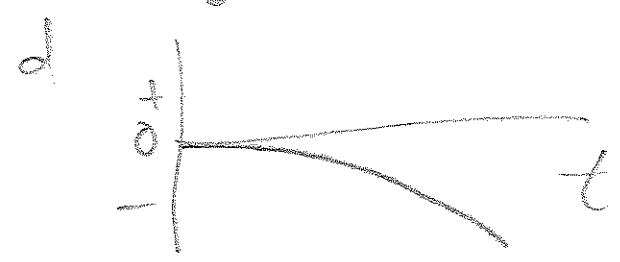


SPEED OVER > SPEED BACK
 ENERGY LOSS

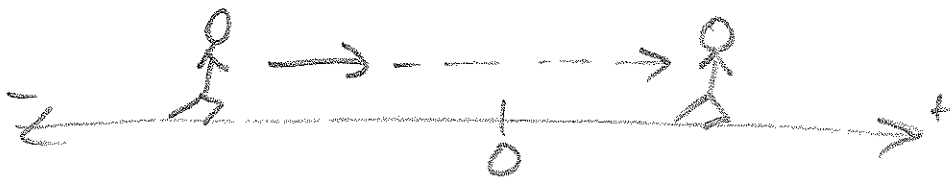
10. DONOVAN BATLEY - SP. UP: EAST



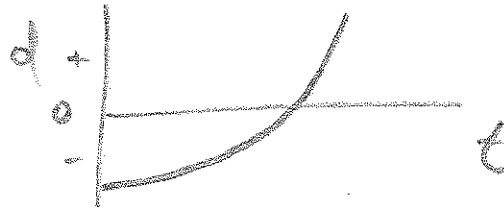
11. BEN JOHNSON - SP. UP: WRONG WAY



12



SPEEDING UP
EAST STARTING
WEST OF O.



13

SLIDING BOOK ACROSS FLOOR EAST. (SLIDING EAST)



Slope \oplus
but decreasing

14

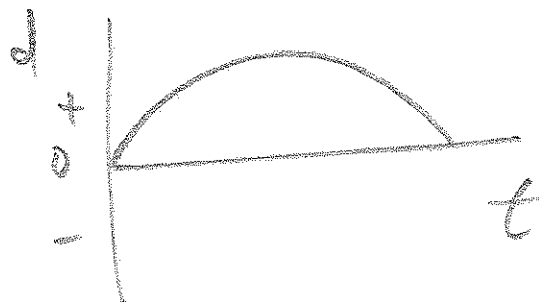


SLIDING WEST



15

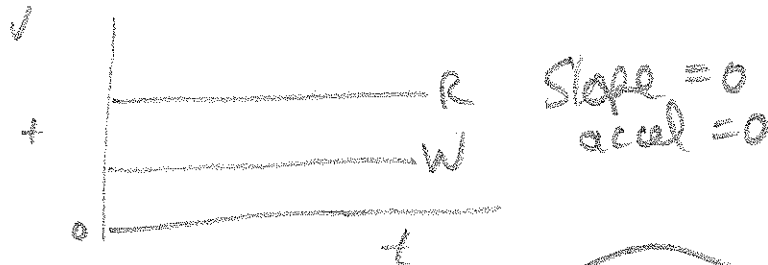
BALL UP \rightarrow DOWN (SLIDING UPWARDS / SP. UP. DOWNWARDS)



V vs. t GRAPHS

$$\vec{a} = \frac{\vec{v}}{t} = \frac{v_2 - v_1}{t_2 - t_1} = \text{Slope of } v-t$$

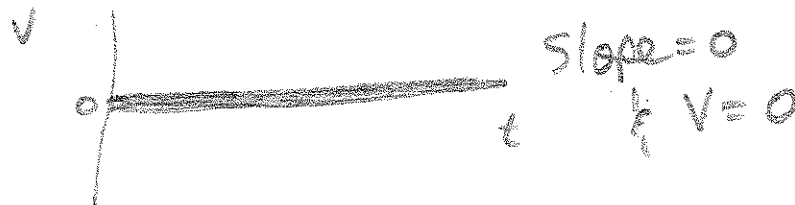
① W/R EAST



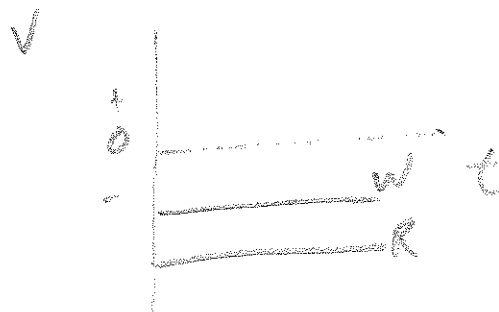
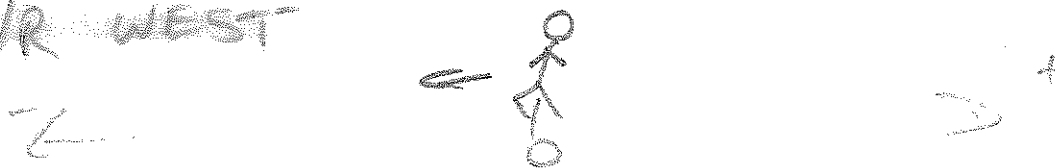
② STANDING EAST OF O.



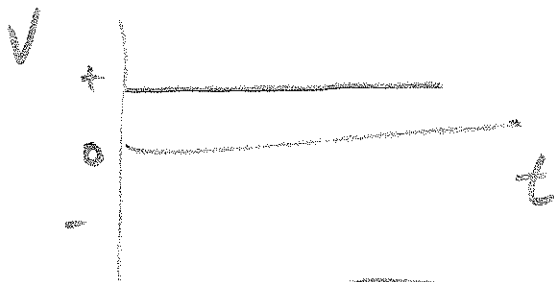
ALSO FOR W OF O



④ W/R WEST



5. ~~WALKING EAST~~ STARTING WEST OF O.



CANT SHOW POSITION

6. ~~WALKING EAST~~ STARTING WEST OF PASTO.

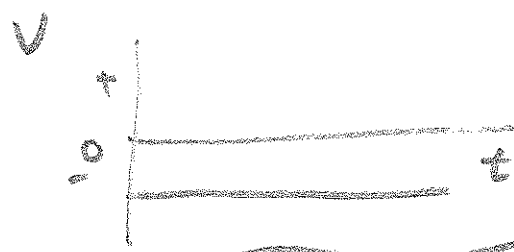


SAME AGAIN

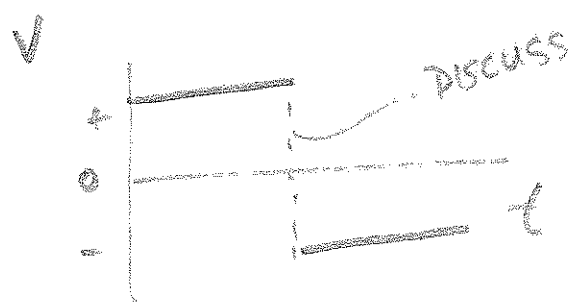
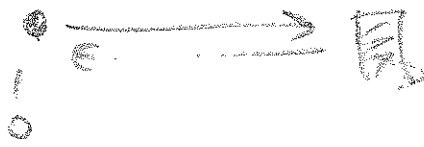


" " "

7. ~~WALKING WEST~~ STARTING EAST OF O.

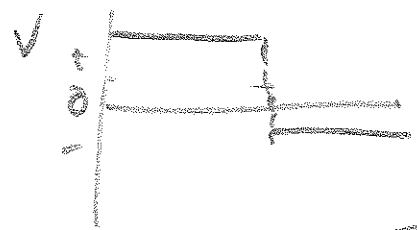


8. ~~STOPPING OVER!~~ BACK



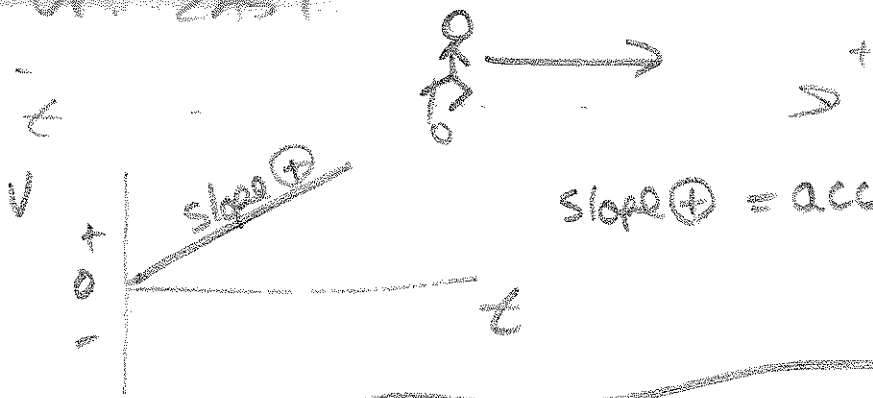
DISCUSS

9. ~~GOING OVER AND BACK~~ GREATER SPEED



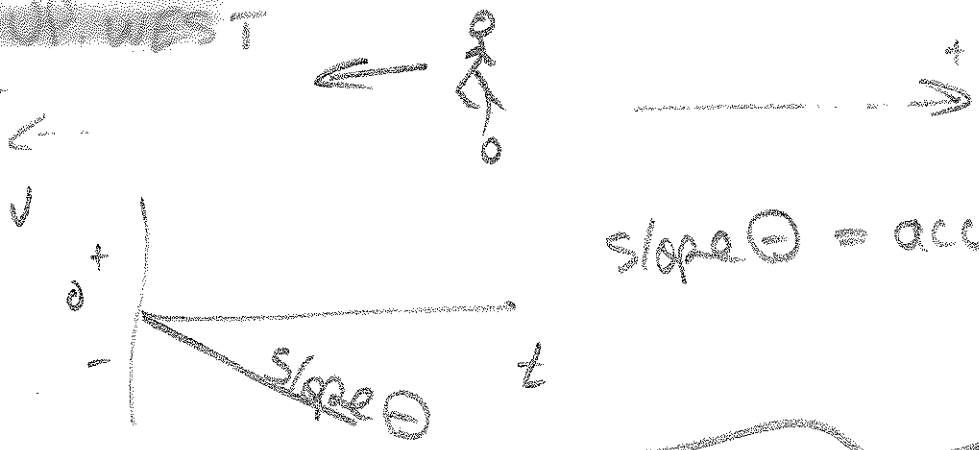
$V \oplus$ over \rightarrow
 $V \ominus$ back

10. ~~SP. UP. EAST~~



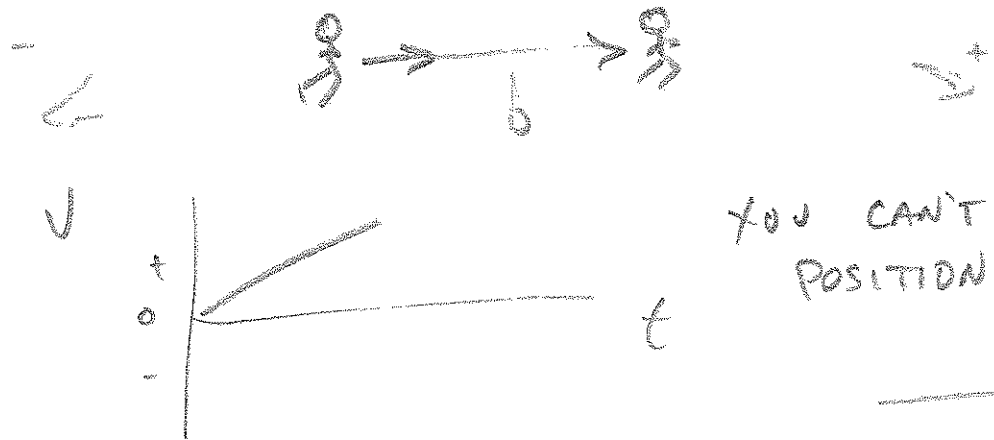
slope \oplus = accel. \oplus

11. ~~SP. UP. WEST~~



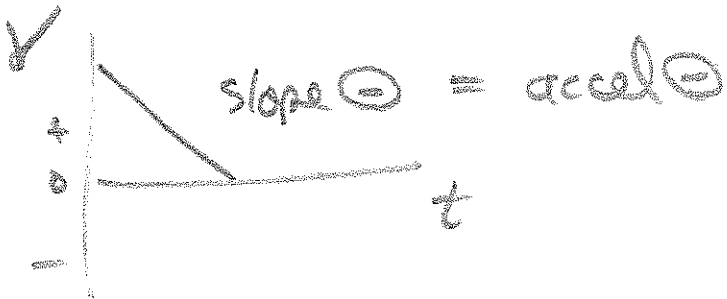
slope \ominus = accel. \ominus

12. ~~SP. UP. EAST - GOING FASTER~~

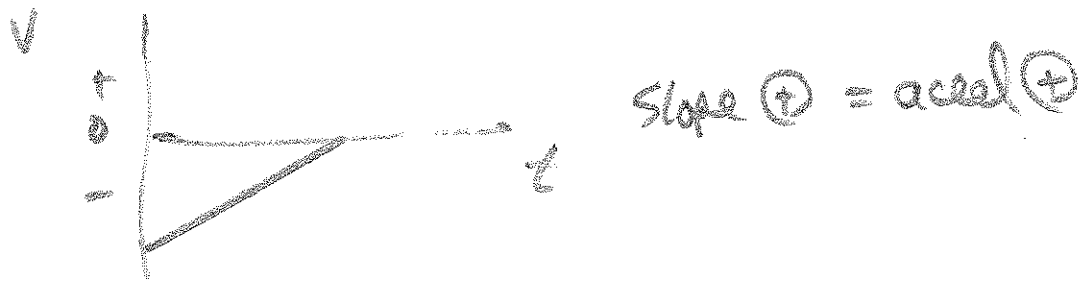


YOU CAN'T TELL
 POSITION ON A
 V-t GRAPH

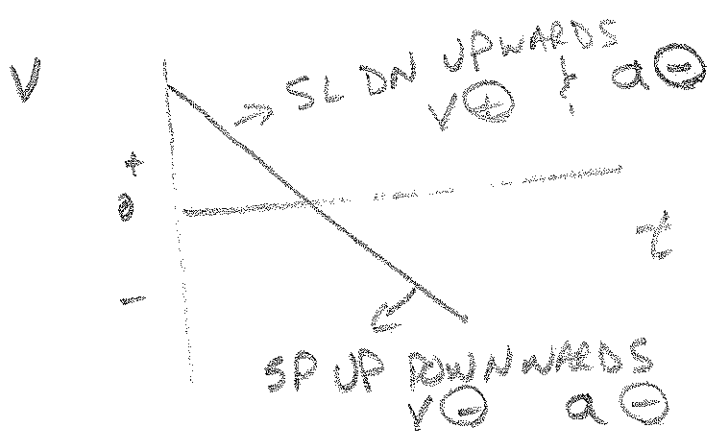
13) ~~CAR ON EAST (BOOK AGAINST FLOOR)~~



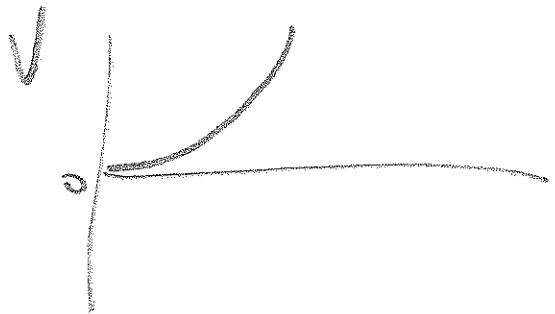
14) ~~SL. DN. WEST~~



15) ~~BALL UP/DOWN~~



WHAT'S THIS



NOT ONLY IS v INCREASING
BUT SLOPE IS CHANGING
 \therefore accel " "

COMPARE TO
CAR - TORQUE

NON-UNIFORM ACCEL = JERK