

Kinematics

- 1.01A - I know the difference between position, distance, and displacement (change in position) and I can determine each.
 1.02A - I can interpret/draw position vs. time graphs in terms of direction of motion, starting position, speeding up/slowing down/constant velocity
 1.03A - I can interpret/draw velocity vs. time graphs in terms of direction of motion, starting position, speeding up/slowing down/constant velocity
 1.04B - I can calculate the average velocity/speed, or estimate the instantaneous velocity/speed, from a position-time graph for an object over a specified time interval.
 1.05B - I can use a velocity-time graph to determine acceleration and starting velocity. I distinguish the concepts of velocity and acceleration.
 1.06B - I can calculate the distance an object has traveled and its change in position from a velocity-time graph
 1.07C - I can connect representations of an accelerating object, including x-t graphs, v-t graphs, and a-t graphs, strobe diagrams/motion maps, and written descriptions for objects moving in the positive or negative direction
 1.08C - I can solve problems using the constant velocity and uniform acceleration models

Slope tells you how variables change

Slope: position increases by a certain amount for every change in X

When interpreting slope, look for:

↳ steepness

↳ sign → (+) or (-)

Y-intercept:

↳ position when X is zero

↳ initial position

Equation:

position = velocity · time + initial position

Slope is also called Velocity

equation to model motion:

position = velocity · time + initial position

or

$$x = v \cdot t + x_0$$

Motion Maps

VECTORS - quantities that include both magnitude and direction

SCALARS - quantities that include magnitude only