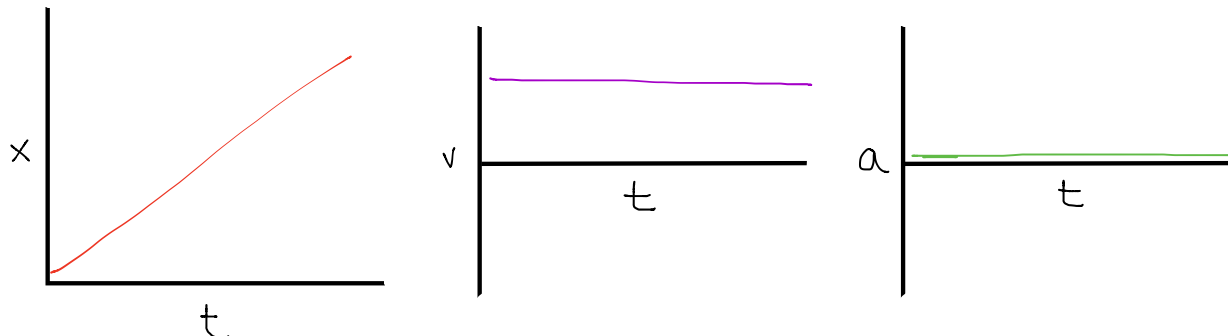


#1: Object moves AWAY from origin* at a CONSTANT velocity**.

* displacement graph: **positive slope**; velocity graph: in **positive quadrant**

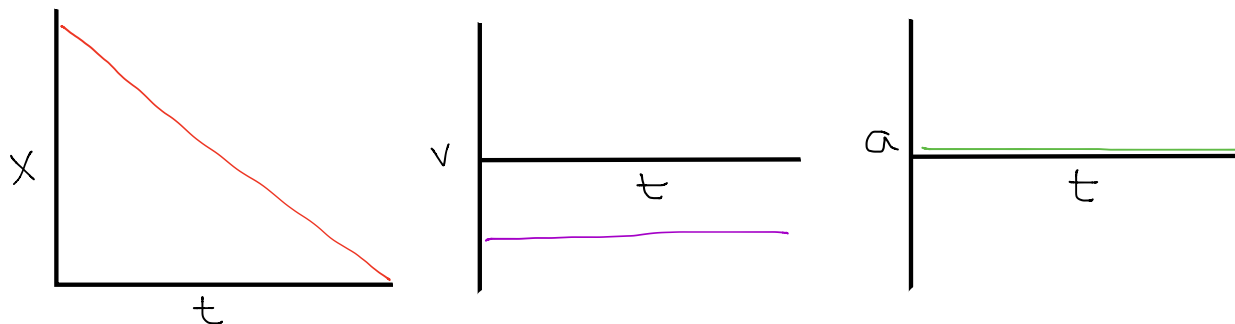
** displacement graph: **straight line**; velocity graph: **flat**; acceleration: **zero**



#2: Object moves TOWARDS the origin* at a CONSTANT velocity**

* displacement graph: **negative slope**; velocity graph: in **negative quadrant**

** displacement graph: **straight line**; velocity graph: **flat**; acceleration: **zero**

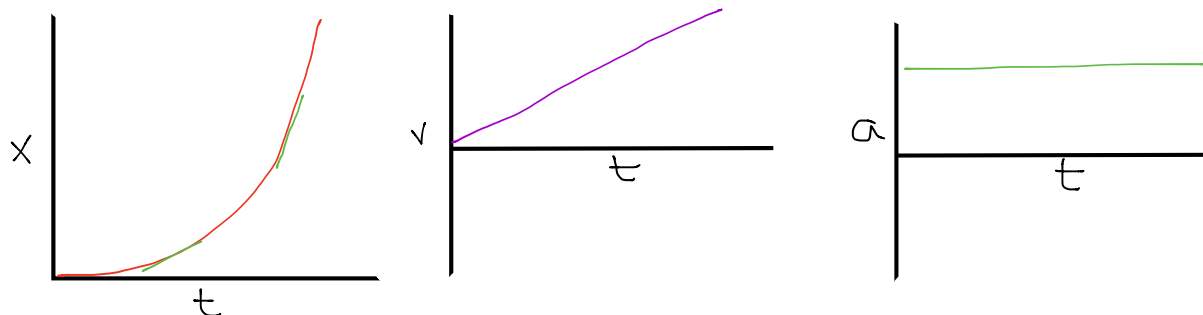


#3: Object moves AWAY from the origin* at a NON-CONSTANT velocity** with an INCREASING acceleration (speeding up)***

* displacement graph: **positive slope**; velocity graph: in **positive quadrant**

** displacement graph: **curved line**; velocity graph: **slanted**

*** displacement graph: **flatter -> steeper**; velocity graph: **positive slope** ("speeding up" because velocity **increases in magnitude**); acceleration graph: in **positive quadrant** (because velocity graph has positive slope)

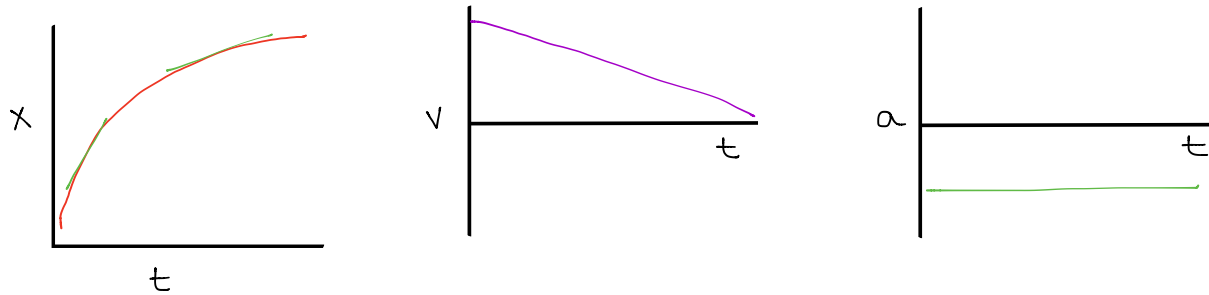


#4: Object moves AWAY from the origin* at a NON-CONSTANT velocity** with an DECREASING acceleration (slowing down)***

* displacement graph: **positive slope**; velocity graph: in **positive quadrant**

** displacement graph: **curved line**; velocity graph: **slanted**

*** displacement graph: **steeper -> flatter**; velocity graph: **negative slope** ("slowing down" b/c velocity **decreases in magnitude**); acceleration graph: in **negative quadrant** (because velocity graph has negative slope)

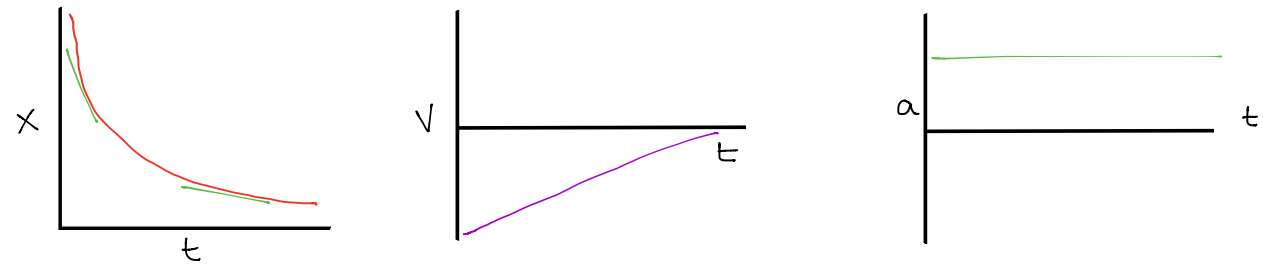


#5: Object moves TOWARD the origin* at a NON-CONSTANT velocity** with an DECREASING acceleration (slowing down)***

* displacement graph: **negative slope**; velocity graph: in **negative quadrant**

** displacement graph: **curved line**; velocity graph: **slanted**

*** displacement graph: **steeper -> flatter**; velocity graph: **decreases in magnitude** ("slowing down"); acceleration graph: in **positive quadrant** (because velocity graph has **positive slope**)

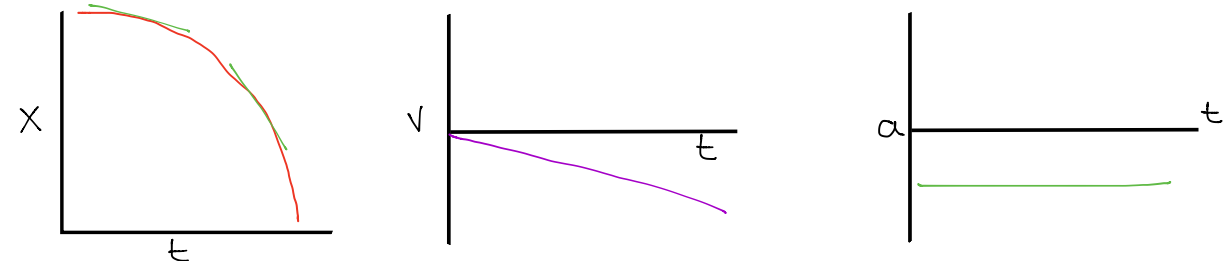


#6: Object moves TOWARD the origin* at a NON-CONSTANT velocity** with an INCREASING acceleration (speeding up)***

* displacement graph: **negative slope**; velocity graph: in **negative quadrant**

** displacement graph: **curved line**; velocity graph: **slanted**

*** displacement graph: **flatter -> steeper**; velocity graph: **increases in magnitude** ("speeding up"); acceleration graph: in **negative quadrant** (because velocity graph has **negative slope**)



SHORTCUT: Use Multiplication Rule!

The Quadrant of **Velocity** and the Quadrant of **Acceleration** determines if the object is Still, Speeding Up, or Slowing Down

*Remember: the Quadrant of a **Velocity** is determined by if the object is moving away from (Positive) or toward (Negative) the origin*

*Remember: the Quadrant of **Acceleration** is determined by the slope of the Velocity graph*

#1: (+) (0) = 0

Positive **Velocity** with 0 **Acceleration** means Constant Velocity

#2: (-) (0) = 0

Negative **Velocity** with 0 **Acceleration** means Constant Velocity

#3: (+) (+) = (+)

Positive **Velocity** with Positive **Acceleration** means Speeding Up

#4: (+) (-) = (-)

Positive **Velocity** with Negative **Acceleration** means Slowing Down

#5: (-) (+) = (-)

Negative **Velocity** with Positive **Acceleration** means Slowing Down

#6: (-) (-) = (+)

Negative **Velocity** with Negative **Acceleration** means Speeding Up