

## Example: Velocity vs Acceleration: What's the difference?

(a) Can an object move without accelerating?  
If yes, give an example.

$$\vec{v} \neq 0$$

$$\vec{a} = 0$$

Yes!

Example: Anything that moves with a constant velocity.

$$\vec{v} = \text{constant} \implies \vec{a} = 0$$

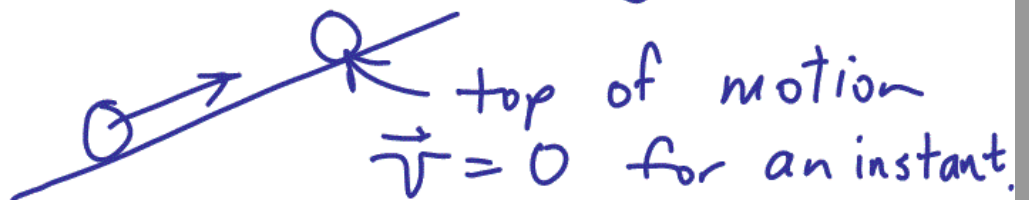
(b) Can an object be at rest and still be accelerating? If yes, give an example.

$$\vec{v} = 0$$

$$\vec{a} \neq 0.$$

Yes!

Example: A marble rolling up an incline.



The marble has constant  
(negative) acceleration  
throughout the motion.  $\vec{a} \neq 0$