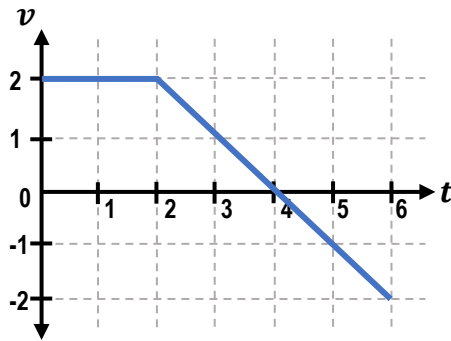


CONCEPT: CALCULATING CHANGES IN VELOCITY FROM ACCELERATION-TIME GRAPHS

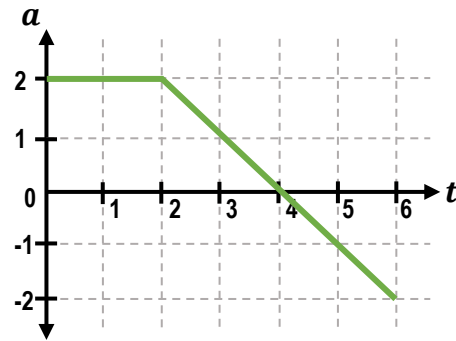
- Calculating velocity changes from acceleration-time graphs is *just* like calculating displacement from velocity-time graphs!

Velocity-Time Graphs



- Area under “curve” (graph) $\Rightarrow [\Delta x \mid \Delta v]$

Acceleration-Time Graphs

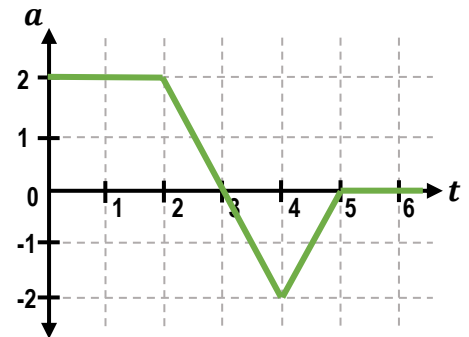


- Area under “curve” (graph) $\Rightarrow [\Delta x \mid \Delta v]$

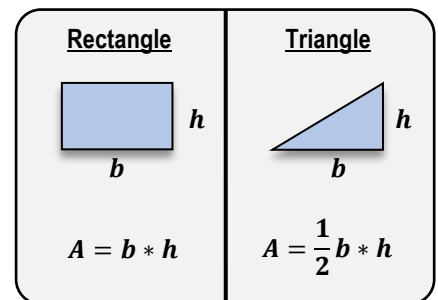
EXAMPLE: The acceleration-time graph is shown for a box initially at rest.

a) What is the box’s velocity at $t=3.0\text{s}$?

b) What is the box’s velocity at $t=5.0\text{s}$?



- Areas above the **time** axis $\rightarrow$ [POSITIVE | NEGATIVE] Δv
- Areas below the **time** axis $\rightarrow$ [POSITIVE | NEGATIVE] Δv



EXAMPLE: The figure shows the acceleration graph for a sliding block with an initial velocity of $v_0=3\text{m/s}$ at $t=0\text{s}$. What is the block's final velocity at $t=5.0\text{s}$?

