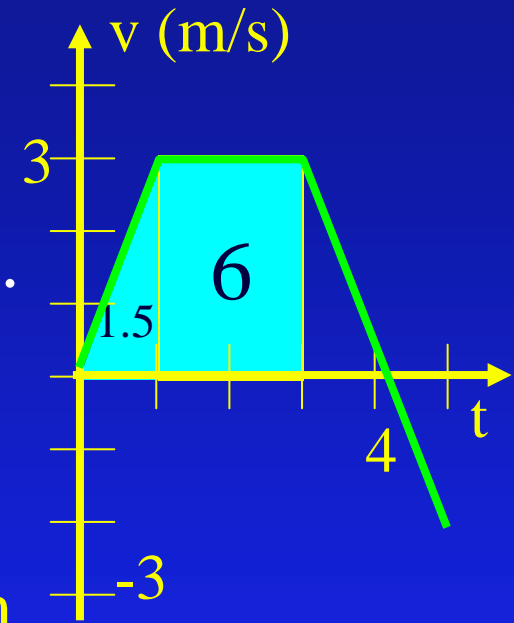


Velocity vs Time Plots

- Gives velocity at any time.
- Area gives displacement
- Slope gives instantaneous acceleration.



velocity at $t=2$, $v(2) = 3 \text{ m/s}$

Displacement between $t=0$ and $t=3$: $\Delta x = 7.5 \text{ m}$

$$t=0 \text{ to } t=1: \frac{1}{2} (3\text{m/s}) (1 \text{ s}) = 1.5 \text{ m}$$

$$t=1 \text{ to } t=3: (3\text{m/s}) (2 \text{ s}) = 6 \text{ m}$$

Average velocity between $t=0$ and $t=3$? $v = 7.5 \text{ m} / 3\text{s} = 2.5 \text{ m/s}$

Change in v between $t=5$ and $t=3$. $\Delta v = -2 \text{ m/s} - 3 \text{ m/s} = -5 \text{ m/s}$

Average acceleration between $t=5$ and $t=3$: $a = -5 \text{ m/s} / (2 \text{ s}) = -2.5 \text{ m/s}^2$