

9. The acceleration is the slope of the velocity versus time curve. It is calculated by dividing the difference between the velocities at two times by the corresponding time difference. We will arbitrarily use the second data point and the fifth data point for our calculation. For the second data point the velocity is 25 m/s at time $t = 2$ seconds. For the fifth data point the velocity is 10 m/s for time $t = 8$ seconds. The difference in velocity is given by:

$$\Delta v = 10\text{m/s} - 25 \text{ m/s} = -15 \text{ s}$$

The corresponding difference in time is:

$$\Delta t = 8 \text{ s} - 2 \text{ s} = 6 \text{ s}$$

The acceleration is:

$$a = \Delta v / \Delta t$$

$$a = (-15\text{m/s}) / 6 \text{ s}$$

$$a = -2.5 \text{ m/s}$$