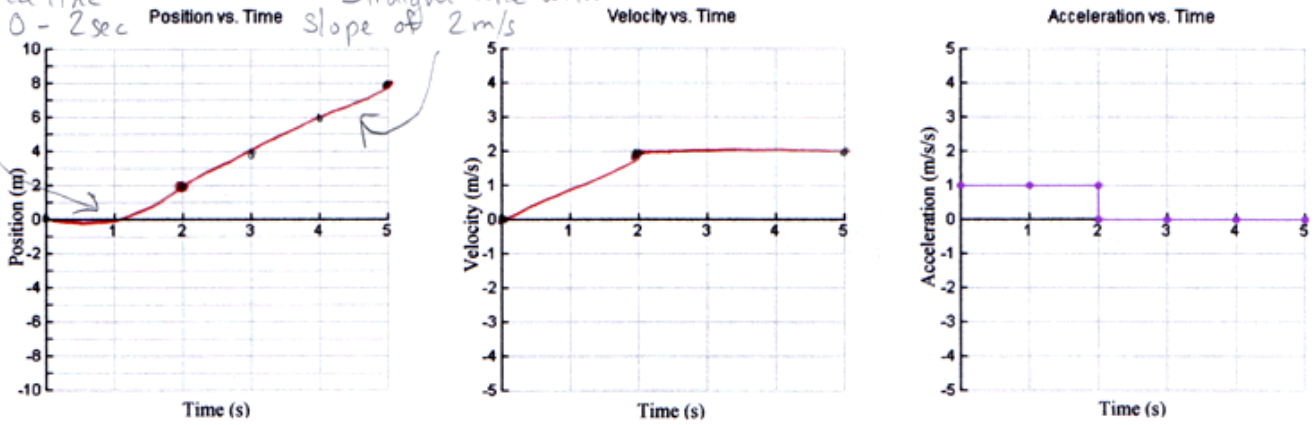
Question N:

Complete the missing Position-Time and Velocity-Time graphs for the situation below. Assume all unknown initial position and velocity values are zero. Use the area under a curve method to calculate the displacements needed to complete the Position-Time graph.

Curved line from 0 - 2 sec

Straight line with slope of 2 m/s



① Find change in velocity from area of Acceleration-Time graph:

$\Delta V_{0-2} = b \cdot h$

$= (2\ sec)(1\ m/s^2)$

$\boxed{\Delta V_{0-2} = 2\ m/s}$

$\Delta V_{2-5} = b \cdot h$

$= (3\ sec)(0\ m/s^2)$

$\boxed{\Delta V_{2-5} = 0\ m/s}$

② Find change in position from area of Velocity-Time graph:

$\Delta d_{0-2} = \frac{1}{2} \cdot b \cdot h$

$= \frac{1}{2}(2\ sec)(2\ m/s)$

$\boxed{\Delta d_{0-2} = 2\ m}$

$\Delta d_{2-5} = b \cdot h$

$= (3\ sec)(2\ m/s)$

$\boxed{\Delta d_{2-5} = 6\ m}$