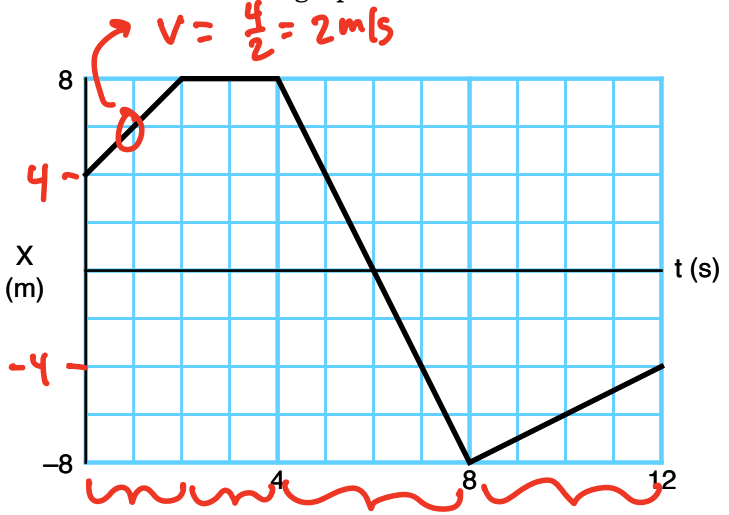
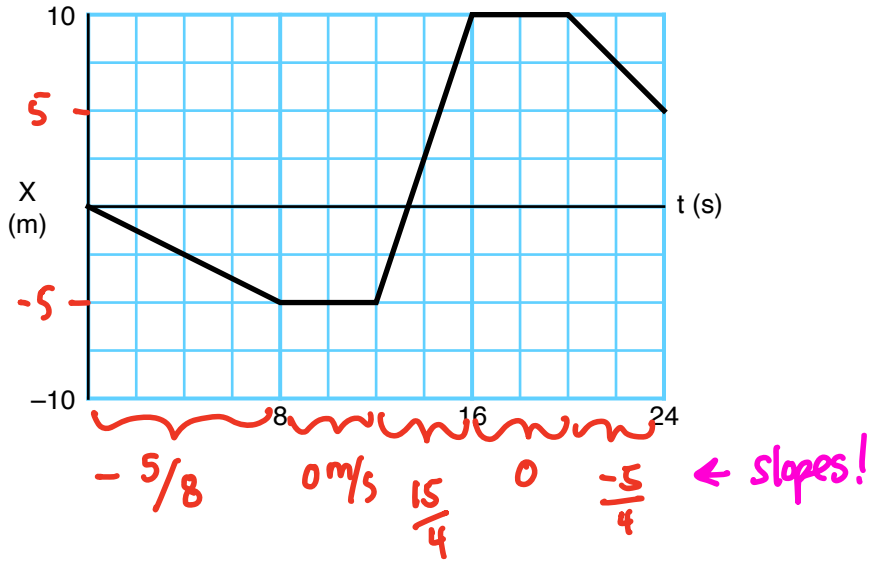
NAME: KEY

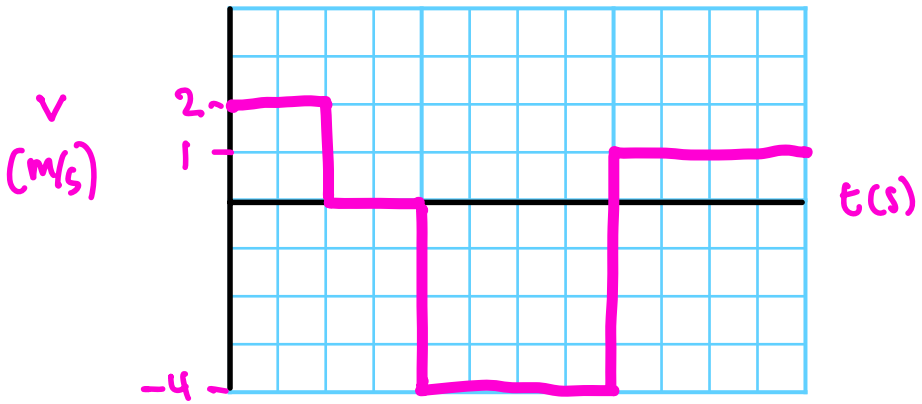
Motion Graphs II

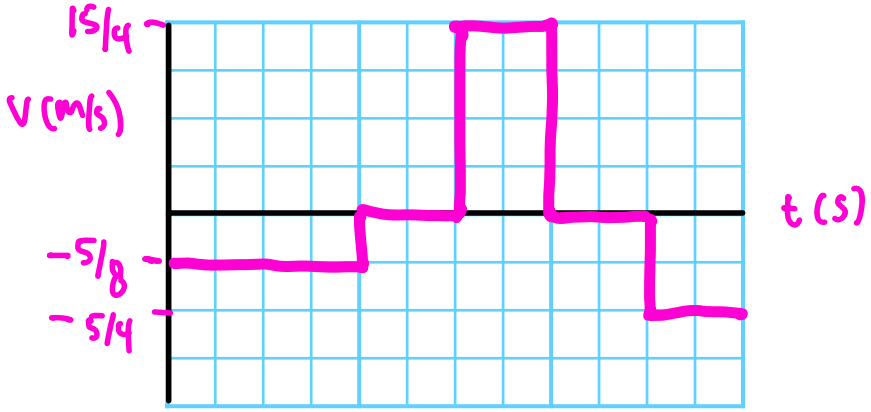
Find the Slopes!

1. For the following Position verses Time graphs, make an appropriate Velocity verses Time graph. Assume any velocity changes happen in too small a time to graph.



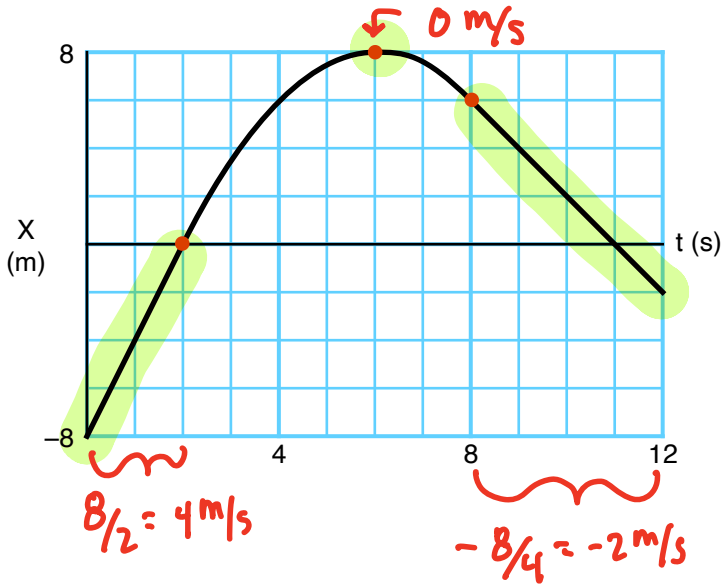


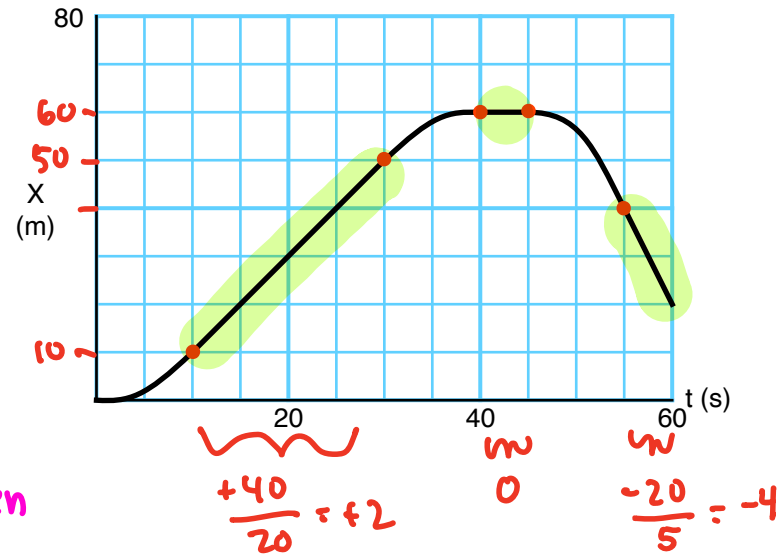




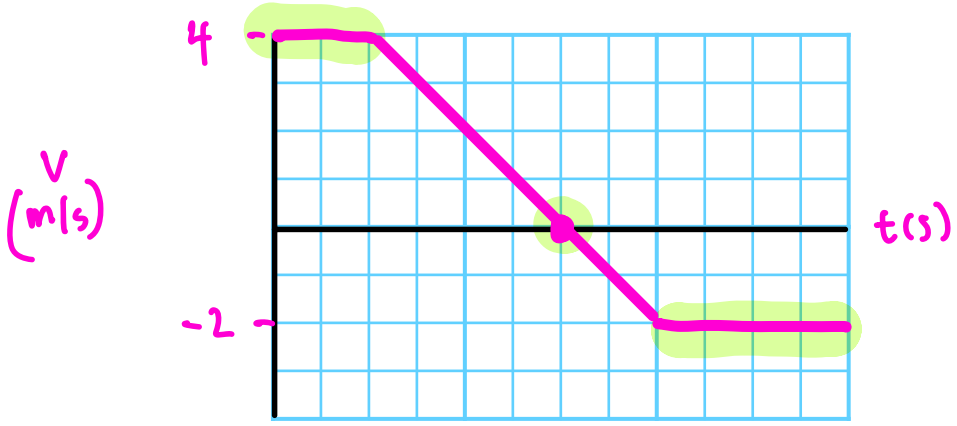
Motion Graphs II

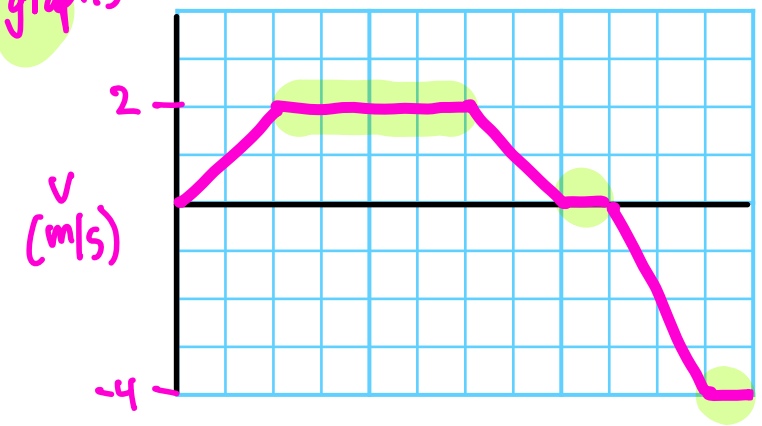
2. For the following Position verses Time graphs, make an appropriate Velocity verses Time graph. Assume any accelerations are constant. The red dots correspond to concavity changes.





Do the velocities that you can, then just connect the graphs





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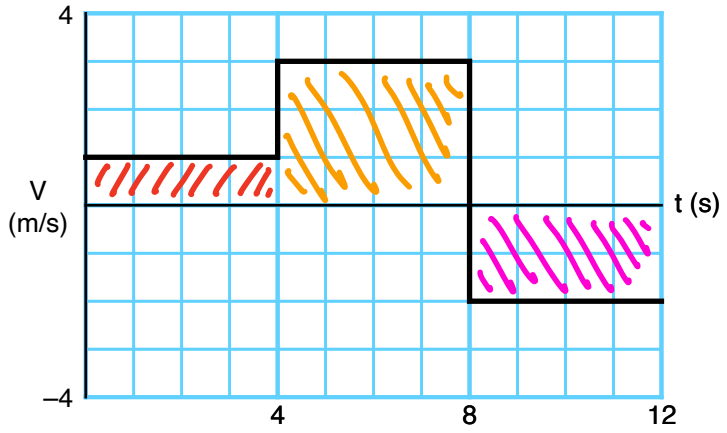
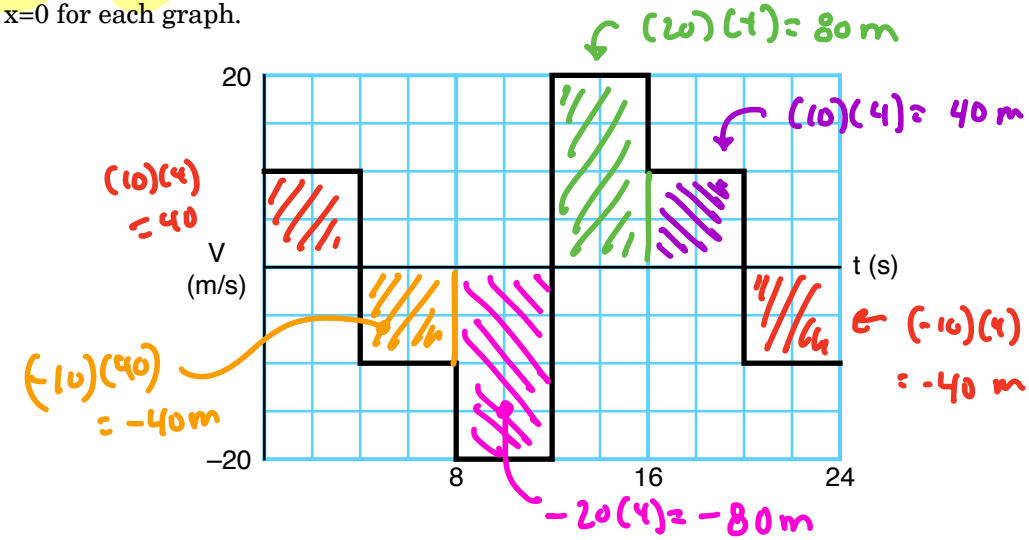
Motion Graphs II

Area under Velocity Graph = Δx !

3. For the following Velocity verses Time graphs, make an appropriate Position verses Time graph. Assume any velocity changes happen in too small a time to graph. Assume the initial position was x=0 for each graph.

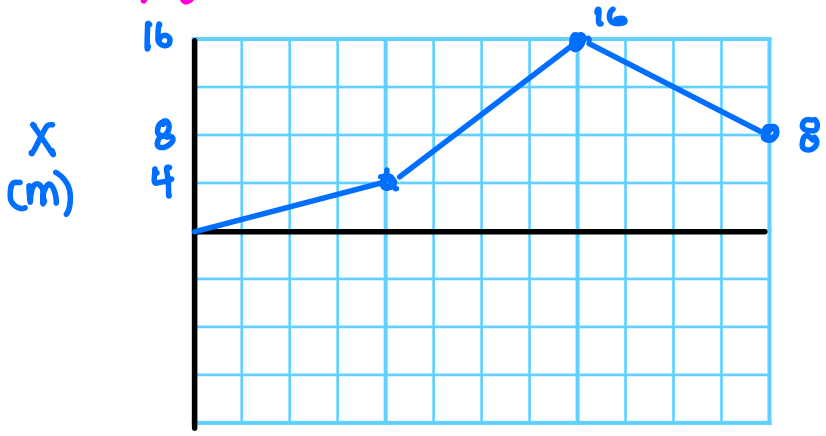


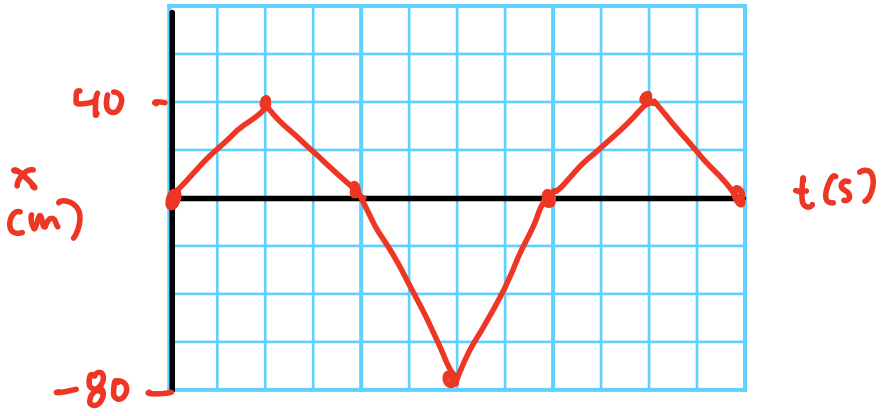


A1 = (1 m/s)(4 s) = 4m

A2 = (3 m/s)(4 s) = 12 m

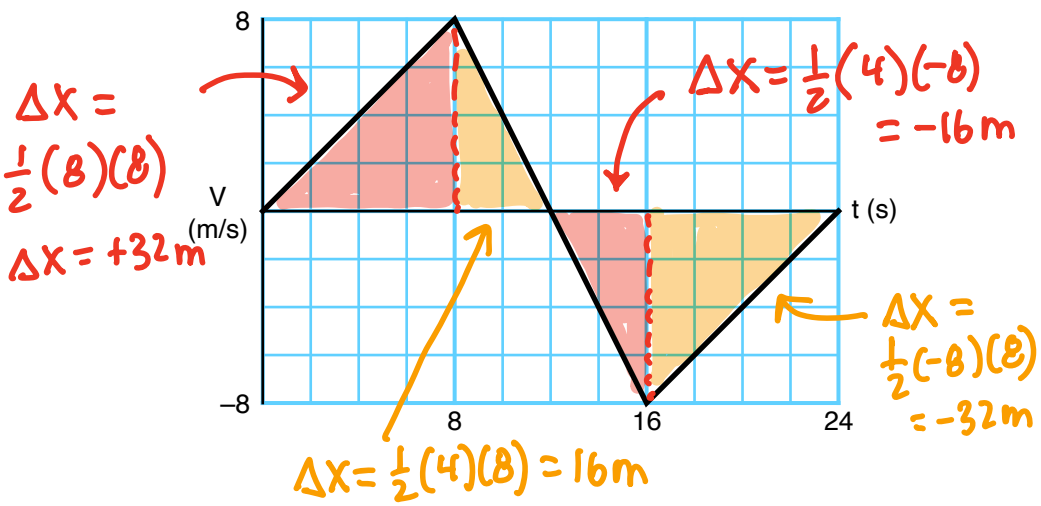
A3 = (-2 m/s)(4 s) = -8 m

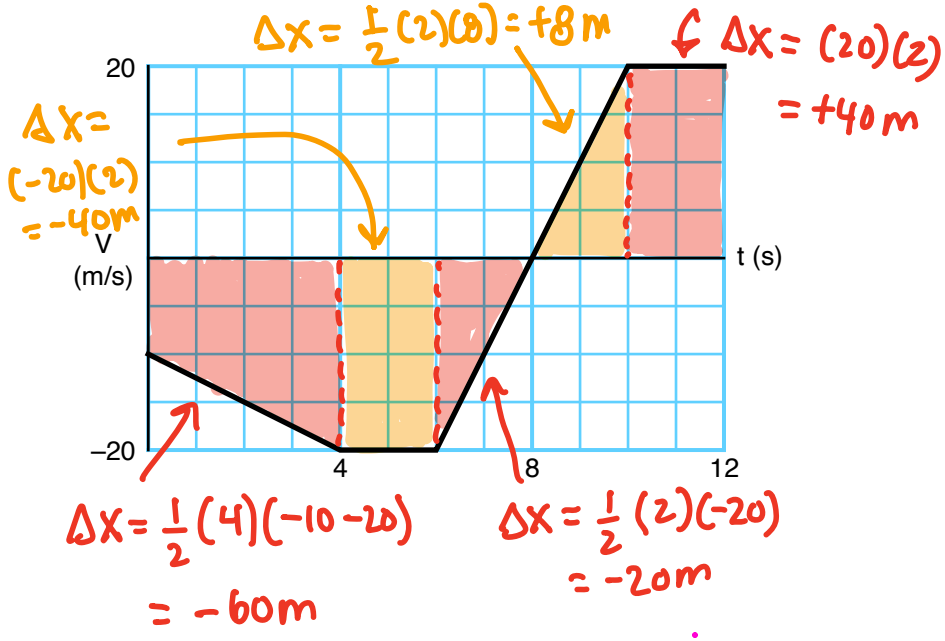


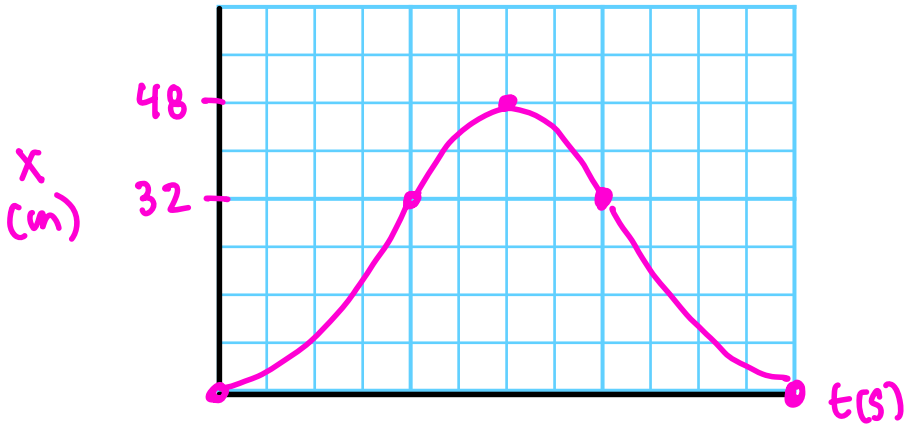


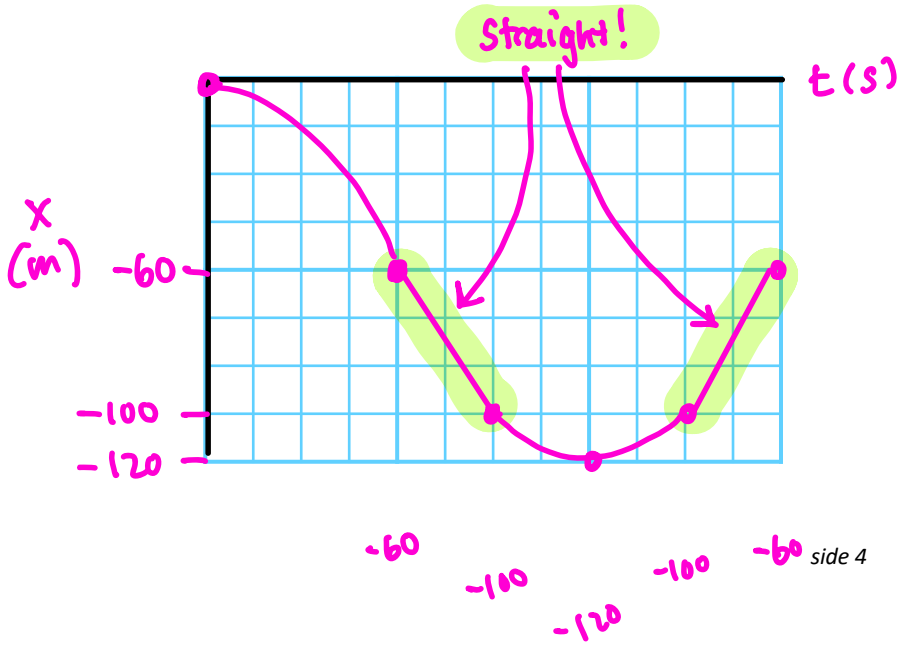
Motion Graphs II

4. For the following Velocity verses Time graphs, make an appropriate Position verses Time and Acceleration verses Time graphs. Assume the initial position was x=0 for each graph.









acceleration is slope of velocity!

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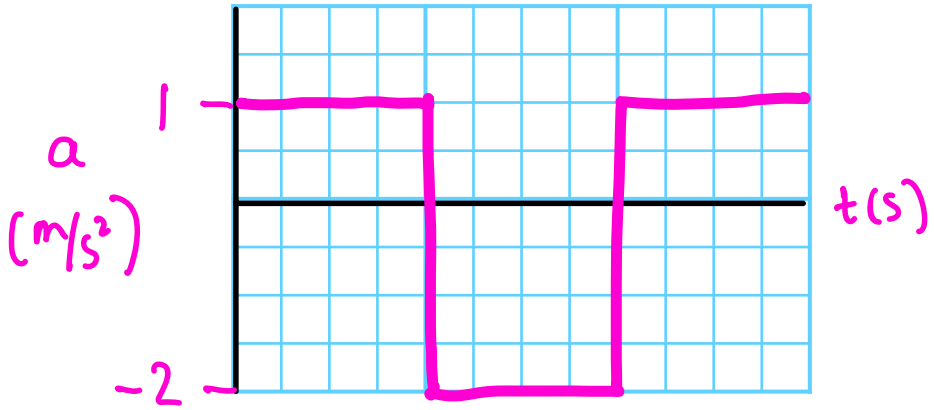
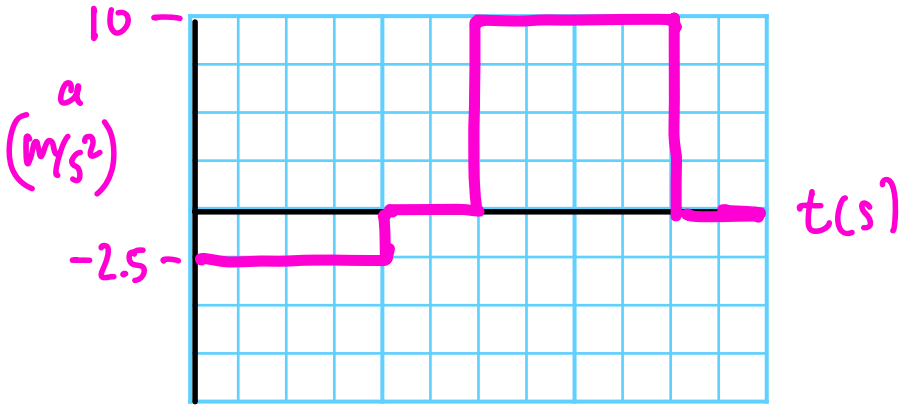
Motion Graphs II



$a_1 = \frac{+8}{8} = +1\ m/s^2$

$a_2 = \frac{-16}{8} = -2\ m/s^2$

$a_3 = \frac{+8}{8} = +1\ m/s^2$



$a_1 = \frac{-10}{4} = -2.5\ m/s^2$

$a_2 = 0\ m/s^2$

$a_3 = \frac{+40}{4} = +10\ m/s^2$

$a_4 = 0\ m/s^2$