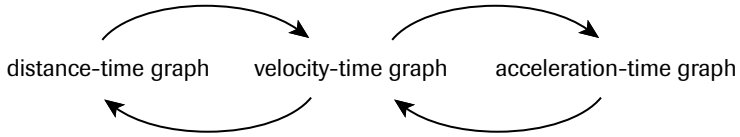
Summary of Kinematics

1. Complete the following diagram indicating how the different types of graphs are related. Include the area and slope for the graphs.



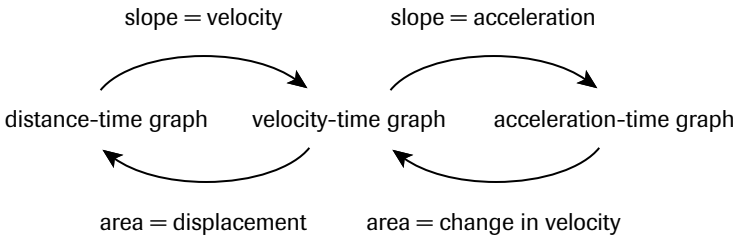
2. Complete **Table 1** to summarize the constant acceleration equations for uniformly accelerated motion.

Table 1 Constant Acceleration Equations for Uniformly Accelerated Motion

Variables Involved	General Equation	Variable Eliminated
$\vec{a}, \vec{v}_f, \vec{v}_i, \Delta t$		
$\Delta\vec{d}, \vec{v}_i, \vec{a}, \Delta t$		
$\Delta\vec{d}, \vec{v}_i, \vec{v}_f, \Delta t$		
$\vec{v}_f, \vec{v}_i, \vec{a}, \Delta\vec{d}$		
$\Delta\vec{d}, \vec{v}_f, \Delta t, \vec{a}$		

Summary of Kinematics, Solution

1. Complete the following diagram indicating how the different types of graphs are related. Include the area and slope for the graphs.



2. Complete **Table 1** to summarize the constant acceleration equations for uniformly accelerated motion.

Table 1 Constant Acceleration Equations for Uniformly Accelerated Motion

Variables Involved	General Equation	Variable Eliminated
$\vec{a}, \vec{v}_f, \vec{v}_i, \Delta t$	$\vec{a} = \frac{\vec{v}_f - \vec{v}_i}{\Delta t}$	$\Delta\vec{d}$
$\Delta\vec{d}, \vec{v}_i, \vec{a}, \Delta t$	$\Delta\vec{d} = \vec{v}_i\Delta t + \frac{1}{2}\vec{a}(\Delta t)^2$	$\vec{v}_f$
$\Delta\vec{d}, \vec{v}_i, \vec{v}_f, \Delta t$	$\Delta\vec{d} = \vec{v}_{av}\Delta t$ or $\Delta\vec{d} = \frac{1}{2}(\vec{v}_i + \vec{v}_f)\Delta t$	$\vec{a}$
$\vec{v}_f, \vec{v}_i, \vec{a}, \Delta\vec{d}$	$v_f^2 = v_i^2 + 2a\Delta d$	Δt
$\Delta\vec{d}, \vec{v}_f, \Delta t, \vec{a}$	$\Delta\vec{d} = \vec{v}_f\Delta t - \frac{1}{2}\vec{a}(\Delta t)^2$	$\vec{v}_i$