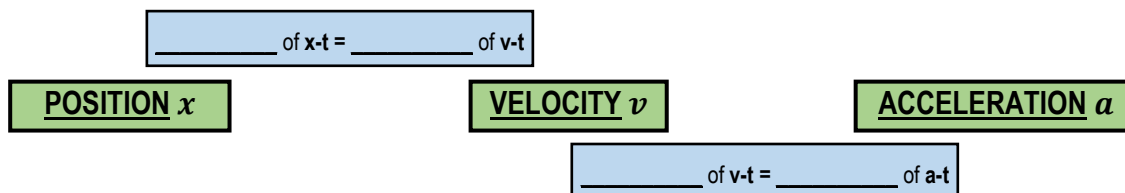## CONCEPT: GRAPHING POSITION, VELOCITY, AND ACCELERATION GRAPHS
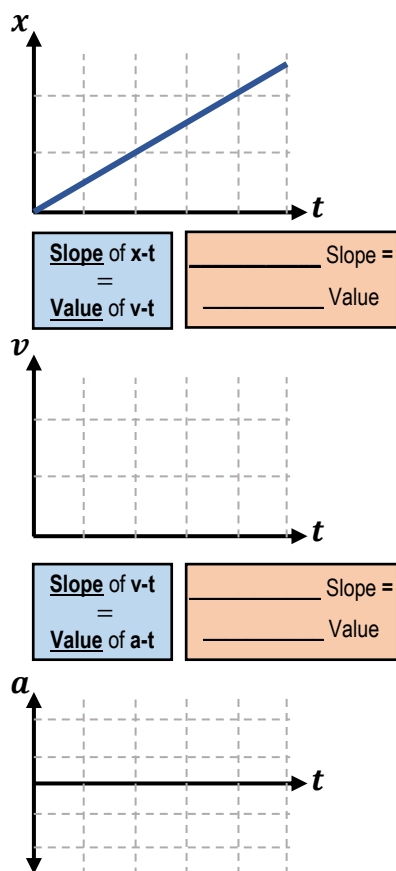
● When sketching motion graphs, remember the relationships between the 3 motion variables:
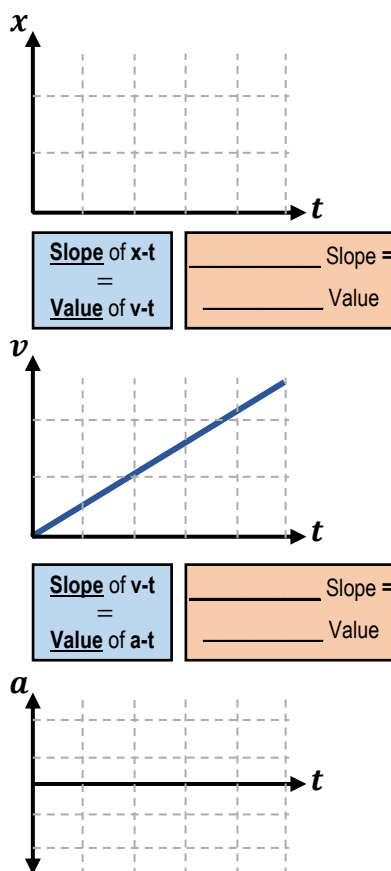
_____ of x-t = _____ of v-t

| POSITION x | VELOCITY v | ACCELERATION a |

_____ of v-t = _____ of a-t

EXAMPLE: In the diagrams below, using the given graph, sketch the missing graphs.
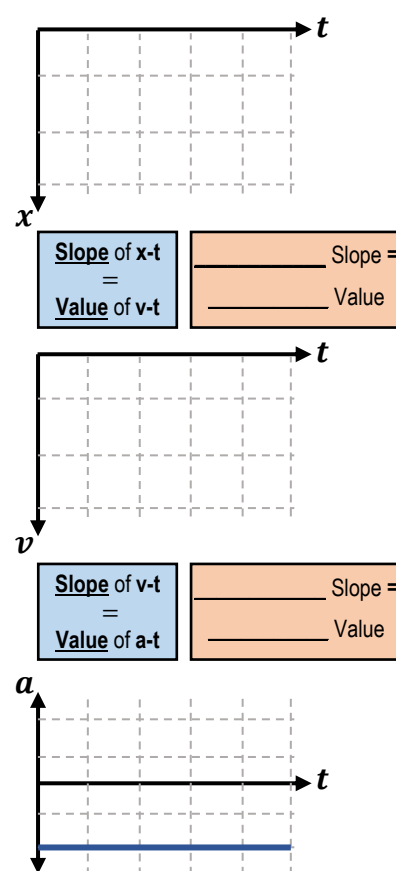For parts **B** and **C**, assume you start at rest ($v_0=0$) from the origin ($x_0=0$).

a)

x / t

| **Slope** of **x-t** = **Value** of **v-t** | _____ Slope = _____ Value |

v / t

| **Slope** of **v-t** = **Value** of **a-t** | _____ Slope = _____ Value |

a / t

b)

x / t

| **Slope** of **x-t** = **Value** of **v-t** | _____ Slope = _____ Value |

v / t

| **Slope** of **v-t** = **Value** of **a-t** | _____ Slope = _____ Value |

a / t

c)

t / x

| **Slope** of **x-t** = **Value** of **v-t** | _____ Slope = _____ Value |

t / v

| **Slope** of **v-t** = **Value** of **a-t** | _____ Slope = _____ Value |

a / t

EXAMPLE: Starting from the origin, your velocity-time graph is shown below. Sketch the position and acceleration graphs.

x

t

v

t

a

t