(a) v_x-t graph for an object moving on the x-axis

(b) Object's position, velocity, and acceleration on the x-axis

v_x

Slope zero: $a_x = 0$

C

B   D

0   t

A   E

Slope positive:
$a_x > 0$
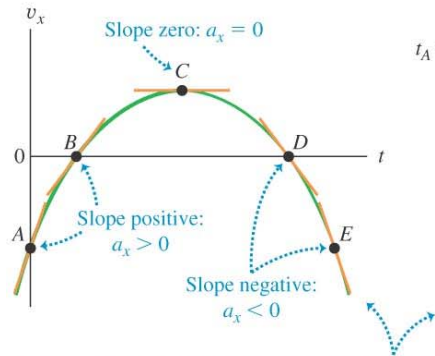
Slope negative:
$a_x < 0$

The steeper the slope (positive or negative) of an object's v_x-t graph, the greater is the object's acceleration in the positive or negative x-direction.

$t_A = 0$ — a / v — 0 — x — Object is at $x < 0$, moving in the $-x$-direction ($v_x < 0$), and slowing down (v_x and a_x have opposite signs).

t_B — a / $v = 0$ — 0 — x — Object is at $x < 0$, instantaneously at rest ($v_x = 0$), and about to move in the $+x$-direction ($a_x > 0$).

t_C — $a = 0$ / v — 0 — x — Object is at $x > 0$, moving in the $+x$-direction ($v_x > 0$); its speed is instantaneously not changing ($a_x = 0$).

t_D — a / $v = 0$ — 0 — x — Object is at $x > 0$, instantaneously at rest ($v_x = 0$), and about to move in the $-x$-direction ($a_x < 0$).

t_E — a / v — 0 — x — Object is at $x > 0$, moving in the $-x$-direction ($v_x < 0$), and speeding up (v_x and a_x have the same sign).