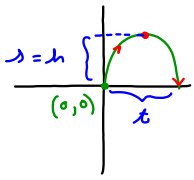
$s(t) = -16t^2 + V_0 t + s_0$

t = time

V_0 = Initial velocity

s_0 = Initial height



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(a) $V_0 = 128$ ft/sec., $s_0 = 0'$

$s(t) = -16t^2 + 128t + 0$

max h

(h, k) = Vertex (sec, height)

4 sec. ? = 8 sec.

$0 = -16t^2 + 128t$

$0 = 16t(-t + 8)$

① $\frac{16t}{16} = \frac{0}{16}$

$t = 0$

② $-t + 8 = 0$

$-t = -8$

$t = 8$ sec.

$h = -\frac{b}{2a} = -\frac{128}{2(-16)} = -\frac{128}{-32}$

$= 4$ sec.

$s(4) = -16(4)^2 + 128(4)$

$= 448'$

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