3.4 Velocity and Other Rates Day 1

Position, Velocity, Speed, Acceleration

Position = $s(t)$ = position at time t

Δs = displacement

Velocity = $v(t)$

$v(t) = s'(t)$ = Instantaneous velocity

$\frac{\Delta s}{\Delta t}$ = Average velocity

Speed = $|v(t)|$

Acceleration = $a(t) = v'(t) = s''(t)$

Ex 1) If $s(t) = t^3 - 3t^2 + 12t + 4$

Find $v(3)$

Find does $v(t) = 0$?

Find the speed at $t = 1, 2, 3$

Find $a(1)$

Ex 2) An object is thrown in the air. Its height is modeled by $h(t) = 160t - 16t^2$.

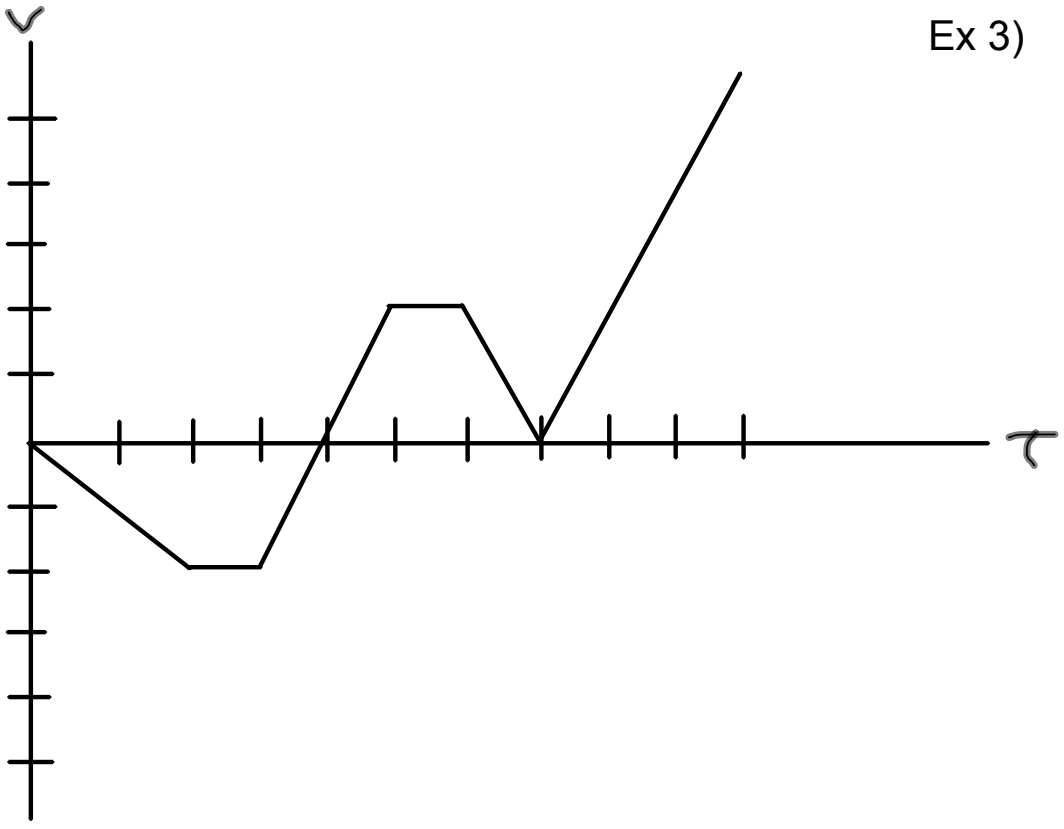
When does it reach its highest point?

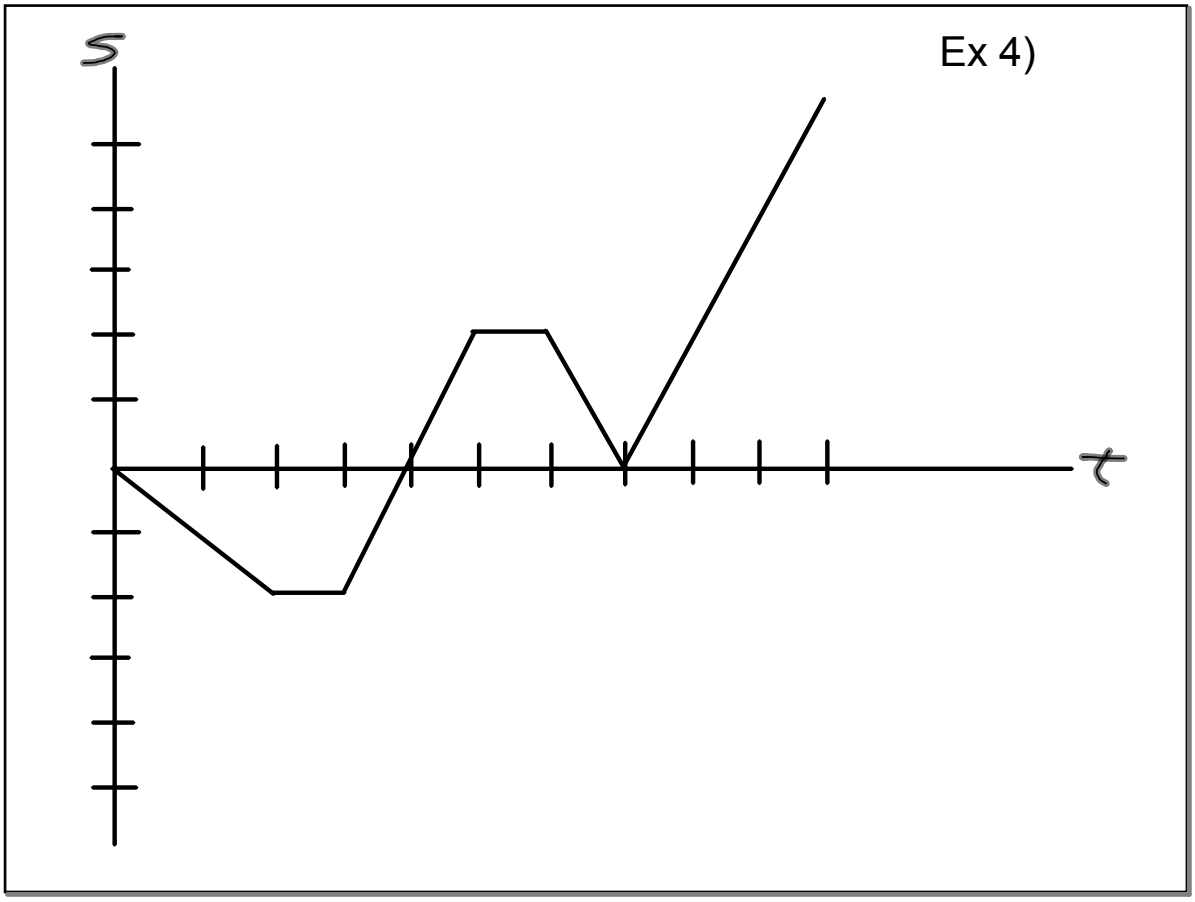
How high did it go?

How long was it in the air?

What is the average velocity [0,2] ?

Ex 3)




Ex 4)
s
t