

Test Topics

-Limits

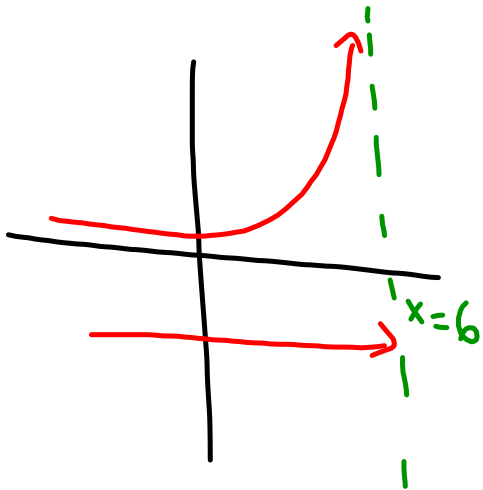
-Derivatives

-Integrals

-Parametric Equations

Limits

- direct substitution $\left(\lim_{x \rightarrow 4} x+3 \right)$
- factor to simplify $\left(\lim_{x \rightarrow 2} \frac{x-2}{(x-2)(x+5)} \right)$
- one-sided limits $\left(\lim_{x \rightarrow 1^-} f(x), f(x) = \begin{cases} x+1, & x > 1 \\ x-1, & x \leq 1 \end{cases} \right)$
- limits that approach ∞ $\left(\lim_{x \rightarrow \infty} \frac{1}{x} \right)$



Derivatives

- implicit differentiation
- optimization

Integrals

- $\frac{1}{x}$
- \sqrt{x}
- U-substitution
- trig
- area under curve
- volume.

Parametric Equations

- projectile motion

$$x = vt \cos \theta$$

$$y = h + vt \sin \theta - \frac{1}{2}gt^2$$

- arc length

$$L = \int_a^b \sqrt{\left(\frac{dx}{dt}\right)^2 + \left(\frac{dy}{dt}\right)^2} dt$$