3.6 Summary of Derivatives for Polynomial Functions

With these rules you can find the derivative of any polynomial function without limits, often in a single step.

Constant Rule - $f(x) = k \longrightarrow f'(x) = $_____
  Ex: f(x) = 4 ⇨ f '(x) = _____

Power Rule - $f(x) = x^n \longrightarrow f'(x) = $_____
  Ex: f(x) = x^5 ⇨ f '(x) = _____

Constant Multiple Rule - $f(x) = kg(x) \longrightarrow f'(x) = $_____
  Ex: f(x) = $3x^{10}$ ⇨ f '(x) = _____

Sum/Difference Rule - $f(x) = g(x) \pm h(x) \longrightarrow f'(x) = $_____
  Ex: f(x) = x^3 + $4x^2$ ⇨ f '(x) = _____
Ex 1 Find f '(x)

(a) $f(x) = x^3 + x^2 + x + 1$ (b) $f(x) = 3x^2 + 5x$ (c) $f(x) = \sqrt{x} + \dfrac{1}{x}$

$\qquad$ hint: $f(x) = x^{\frac{1}{2}} + x^{-1}$

Ex 2 Find the equation of the tangent to $f(x) = x^3 - 3x^2 - 2x + 5$ at the point (0,5).

(you can verify your answer to this in Desmos.com)
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