

$$\textcircled{2} f(x) = \frac{3}{x+1} \Rightarrow f'(x) = \frac{(x+1)(0) - (3)(1)}{(x+1)^2}$$

$$\textcircled{3} y = \frac{1+x}{1-x} \Rightarrow y' = \frac{(1-x)(1) - (1+x)(-1)}{(1-x)^2}$$

$$\textcircled{4} y = \frac{1}{x+1} \Rightarrow y' = \frac{(x+1)(0) - (1)(1)}{(x+1)^2}$$

المفاتيح التي نتذكرها:  $\frac{d}{dx} (u^n) = n u^{n-1} u'$

$$f(x) = (u)^n \Rightarrow f'(x) = n (u)^{n-1} (u')$$

$$\textcircled{1} f(x) = (x^2 + x + 1)^3 \Rightarrow f'(x) = 3(x^2 + x + 1)^2 (2x + 1)$$

$$\textcircled{2} f(x) = (x^3 + x^2 + x + 1)^5 \Rightarrow f'(x) = 5(x^3 + x^2 + x + 1)^4 (3x^2 + 2x + 1)$$

$$\textcircled{3} f(x) = (x^3 + x^2 + 5)^{\frac{2}{3}} \Rightarrow f'(x) = \frac{2}{3} (x^3 + x^2 + 5)^{-\frac{1}{3}} (3x^2 + 2x)$$

$$\textcircled{4} f(x) = \sqrt[3]{x^2 + x + 5} \Rightarrow f'(x) = (x^2 + x + 5)^{-\frac{2}{3}} (2x + 1)$$

(5)

$$\textcircled{5} f(x) = \frac{1}{\sqrt{x+1}} \Rightarrow f(x) = \frac{1}{(x+1)^{\frac{1}{2}}}$$

$$f(x) = (1)(x+1)^{-\frac{1}{2}} \Rightarrow f'(x) = -\frac{1}{2}(x+1)^{-\frac{3}{2}} (1)$$