

$$(u) \quad f(x) = \sqrt{\frac{1-5x}{1+5x}} = \left(\frac{1-5x}{1+5x}\right)^{1/2}$$

$$(f^n)' = n \cdot f^{n-1} \cdot f'$$

$$f'(x) = \frac{1}{2} \left(\frac{1-5x}{1+5x}\right)^{1/2-1} \cdot \left(\frac{1-5x}{1+5x}\right)'$$

$$= \frac{1}{2} \left(\frac{1-5x}{1+5x}\right)^{-1/2} \left[\frac{-5 \cdot (1+5x) - (1-5x) \cdot 5}{(1+5x)^2} \right]$$

$$= \frac{1}{2} \left(\frac{1+5x}{1-5x}\right)^{1/2} \left[\frac{-5 - 25x - 5 + 25x}{(1+5x)^2} \right]$$

$$= \frac{1}{2} \cdot \frac{(1+5x)^{1/2} \cdot (-10)}{(1-5x)^{1/2} (1+5x)^2}$$

$$= \frac{-10}{2} \cdot \frac{(1+5x)^{1/2-2}}{(1-5x)^{1/2}} = -5 \cdot \frac{(1+5x)^{-3/2}}{\sqrt{1-5x}}$$

$$= \frac{-5}{\sqrt{1-5x} \sqrt{(1+5x)^3}} = \frac{-5}{\sqrt{1-5x} \cdot (1+5x) \sqrt{1+5x}}$$

$$= \frac{-5}{(1+5x) \sqrt{1^2 - (5x)^2}} = \frac{-5}{(1+5x) \sqrt{1-25x^2}}$$