

$$f(x) = \frac{x}{(1+x)^2}$$

Note: it is usually a good idea to find all derivatives first.

$$f'(x) = \frac{(1+x)^2 \cdot 1 - x \cdot 2(1+x) \cdot 1}{(1+x)^4} = \frac{(1+x) - 2x}{(1+x)^3}$$

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

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

$$= \frac{(1+x)^2 \cdot \overset{-1-x}{(1+x)(-1)} - \overset{-3+3x}{3(1-x)} \cdot (1+x)^2}{(1+x)^6} = \frac{2x-4}{(1+x)^4}$$

$$f''(x) = \frac{2(x-2)}{(1+x)^4}$$

Summary:

$$f(x) = \frac{x}{(1+x)^2}$$

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

$$f''(x) = \frac{2(x-2)}{(1+x)^4}$$