$g'(\xi) = \frac{f(b)-f(a)}{b-a}$

$f(b)-f(a) = g'(\xi)(b-a)$

$x_{n+1} - r = g'(\xi)(x_n - r)$

$f(b) = x_{n+1}$

$f(a) = r$

$b = x_n$

$a = r$

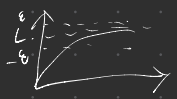
$$f^{-1}(f(x)) = x$$

$$f(f^{-1}(x)) = x$$

$$f(f^{-1}(x))' = (x)'$$

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

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



$\sum_{n=0}^{\infty} \frac{1}{n+3}$

$|a_n - L| < \varepsilon$

$\left|\frac{1}{n+3} - L\right| < \varepsilon$

$\left|\frac{1}{n+3} - 1\right| < \varepsilon$

$$\left|\frac{1}{n+3} - 1\right| = \left|\frac{1}{n+3} - \frac{n+3}{n+3}\right| = \left|\frac{-n-2}{n+3}\right| = \frac{1}{n+3}$$

$$\frac{1}{n+3} < \varepsilon$$

$$n+3 > \frac{1}{\varepsilon}$$

$$n > \frac{1}{\varepsilon} - 3$$