

$$\lim_{x \rightarrow -1} \frac{(3x-4)(2x+2)}{(-x+1)(2x+2)}$$

$$\lim_{x \rightarrow -1} \frac{(3x-4)}{(-x+1)} = \frac{-7}{2} = -3.5$$

$$\varepsilon < 0.01$$

$$-3.51 \quad -3.49 \quad \frac{3x-4}{-x+1} < -3.49$$

$$f(-1-\delta) < -3.49$$

$$f(-1+\delta) > -3.51$$

$$3x-4 < 3.49x - 3.49$$

$$-0.51 < 0.49x$$

$$\frac{-0.51}{0.49} < x$$

$$3x-4 < 3.49x - 3.49$$

$$-3x$$

$$-3x$$

$$-1.04 < x$$

$$-4 < 0.49x - 3.49$$

$$+3.49$$

$$+3.49$$

$$-0.51$$

$$-1.04 \leq -1-\delta$$

$$-0.04 \leq -\delta$$

$$\delta < 0.04$$

$$\frac{3x-4}{-x+1} = -3.49$$

if f is decreasing,

$$\text{then } f(x+\delta) < f(x) \\ \text{and } f(x-\delta) > f(x)$$

if f is increasing
 then $f(x+\delta) > f(x)$
 and $f(x-\delta) < f(x)$

$$\frac{d}{dx}(f \cdot g) = f'g + g'f - f'g$$

$$\int \frac{d}{dx}(f \cdot g) - f'g \, dx = \int g'f \, dx$$

$$fg - f'g \, dx = g'f \, dx$$

