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

$$= \frac{-(2-x)}{-(2-x)(x+2)}$$

$$\lim_{x \to -1} \frac{x^2(x+1)}{(x-5)(x+1)}$$

$$ay^2 + xy = b$$

$$\frac{d}{dx} \rightarrow 2ay \cdot y' + y + x \cdot y' = 0$$

$$y' = \frac{-y}{2ay + x}$$

$$-\frac{1}{2} = \frac{-(2)}{2a(2) + 0}$$

$$-\frac{1}{2a} = -\frac{1}{2}$$

$$a = 1$$

$$(2)^2 + 0 = b$$

$$b = 4$$

$f_1(x)$

$$\frac{x+1}{3x-1}, \quad x < 1$$

$$\frac{x^2-49}{x+7}, \quad x \geq 1$$

$\lim f_1(x) = \frac{x+1}{3x-1}$ $\quad x = \frac{1}{3} < 1$

diskonti

$$f(x) = \begin{cases} a^x & x < 1 \\ 2x + b & 1 \le x < 3 \\ 3x^2 & x \ge 3 \end{cases}$$

($f_1(x)$, $f_2(x)$, $f_3(x)$)

$$\lim_{x \to 1^-} f_1(x) = \lim_{x \to 1^+} f_2(x)$$

$$a = 2 + b$$

$$\lim_{x \to 3^-} f_2(x) = \lim_{x \to 3^+} f_3(x)$$

$$6 + b = 3(3)^2$$

$$6 + b = 27$$

$$b = 21$$

$$3^x + x^5 - \cos x - 10 = 0 = f(x)$$

Trial: $f(-2) < 0$

$f(-1) < 0$

$f(0) < 0$

$f(1) < 0$

$f(2) > 0$

$$3^x + x^5 - \cos x + 2 = 0 = f(x)$$

$[-2, -1]$

$$g(y) = e^{Cy} + Dx$$

$\frac{d}{dx}$ (

$$g'(y) = Ce^{Cy} \cdot y' + D$$

$$y(x) = f(\overbrace{g(h(-x))}^{u(x)})$$

$$= f'(u(x)) + u'(x) f(x)$$

$$u'(x) = g'(h(-x)) - h'$$

$$\lim_{x \to +\infty} = \frac{\sqrt{x}}{99 - 2\sqrt{x}} \cdot \frac{1/x^{\frac{1}{2}}}{1/x^{\frac{1}{2}}}$$

$$= \frac{1}{\frac{99}{\sqrt{x}} - 2}$$

$$= -\frac{1}{2}$$