$$\ln(d\sqrt{x}) =$$

$$\ln d + \frac{1}{2}\ln x = \boxed{\frac{1}{2}\,\frac{1}{x}}$$

$$\frac{1}{2}$$

$$\frac{1}{2}\, f(x)$$

$$y \quad x^2$$

$$\frac{1}{x}$$

c) $\log_2 \frac{2x-6}{x-3} = 4$

$\frac{\quad}{x-3}$

$(x-3)\,16 = \frac{2x-6}{\cancel{x-3}}\,\cancel{(x-3)}$

$16x - 48 = 2x - 6$

$14x = 42$

$x = 3$

$\ln e = 1$

$\ln(\ln x) = 1$ | $\ln e^e$

$e \cdot \ln e = e$

$a = e$

$b = \ln x$ $c = 1$

$2^{\log_2 \boxed{32}} = 32$

$e^1 = \ln x$

$e^1 = \log_e x$ $2^4 = 16$

$e^e = e^{\log_e x} = x$

$e^{\log_e x} = x$

$2^{\log_2 \boxed{16}} = 16$

$$f(x) = \ln\left(\frac{\sqrt[3]{x+1}}{\sqrt[5]{x-1}}\right)$$

$$= \ln(\sin x) =$$

$$= \frac{1}{\sin x} \cdot \cos x = f(g(x))$$

$$= f'(g(x)) \cdot g'(x)$$

$$\tan \frac{\sin x}{\cos x}$$

$$f(x) = \ln\left(\frac{\sqrt[3]{x+1}}{\sqrt[5]{x-1}}\right)$$

$$\ln xy = \ln x -$$

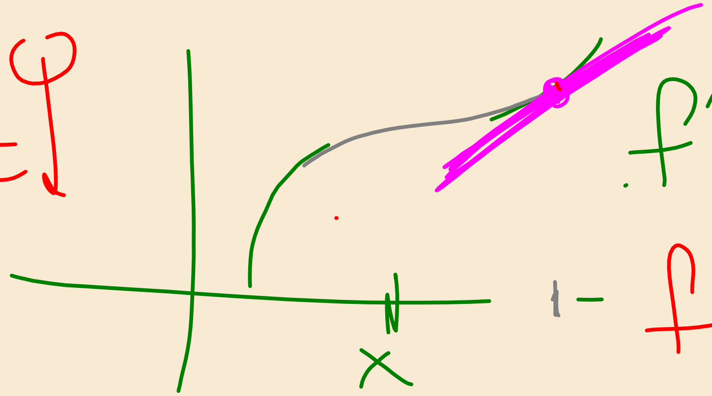
$$\ln\left(\sqrt[3]{x+1}\right) - \ln\left(\sqrt[5]{x-1}\right)$$

$$\frac{1}{3}\underline{\ln(x+1)} - \frac{1}{5}\underline{\ln(x-1)}$$

$$\left(\ln(x+1)\right)' = \boxed{\frac{1}{x+1}}\,\underline{(x+1)'}$$

$$\frac{1}{3(x+1)} - \frac{1}{5(x-1)} \leftarrow$$

$$\boxed{\frac{g t^2}{2}} = 2t$$



$f'(x) =$

$f''(x)$

$$\frac{g t^2}{2} =$$

$t \quad vt$

$$\frac{g t^2}{2}$$

$$(c f(x))' =$$

$c = \frac{g}{2}$

$f(x) = x^2 \quad t$

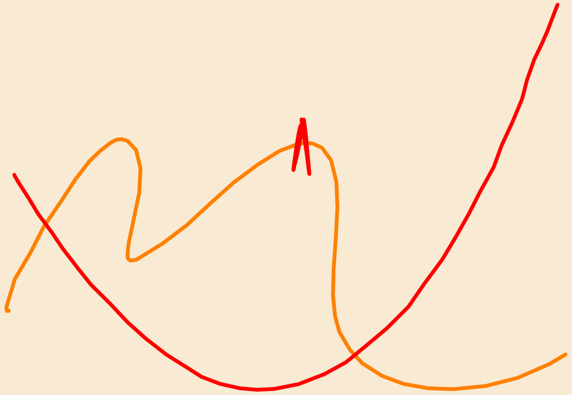
$$\boxed{c f'(x)} = \frac{g}{\cancel{2}} \cancel{2} t$$

y

f'

f''

$$\boxed{2x + x^2 + 2}$$



$e^{\sin x} + \cos x$

$1 \dots n$

x^2

$1 \cdot 2 \cdot 3 \cdot 4 = 24$

$4!$

$8x^7 + 4x \dots$

$\dfrac{f}{P(x)}$

$f^{(7)}(x)$ $f(x)\cos x$

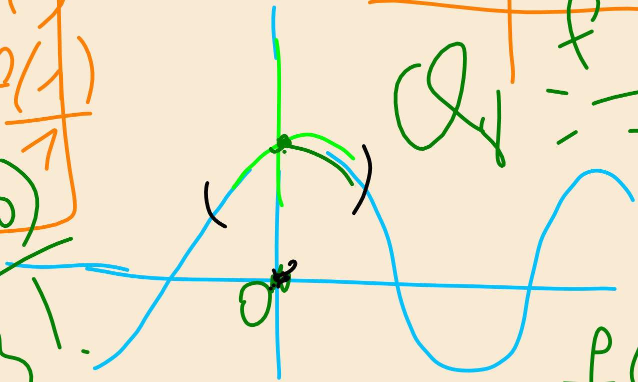
$(a_1)' = 0$

$a_0 = f(0)$

$a_1 = f(1)$

$\dfrac{f'''(0)}{3!}$

$a_2 = \cancel{3!}$



$a_1 =$

$P(x) = \boxed{a_0 + a_1 x + a_2 x^2 + a_3 x^3 \dots}$

$f(0) = P(0) = a_0$

$a_1 x$

$P(x) = f(0) + a_1 x + a_2 x^2 \dots$

$\boxed{c f(x)}$

$f''(0) = \cancel{2a_2} +$

$f'(0) = P'(0) =$

$= 0 + a_1 + 2a_2 x + 3a_3 x^2 + \dots =$

$(x)' = 1$

$(4x)' = 4$

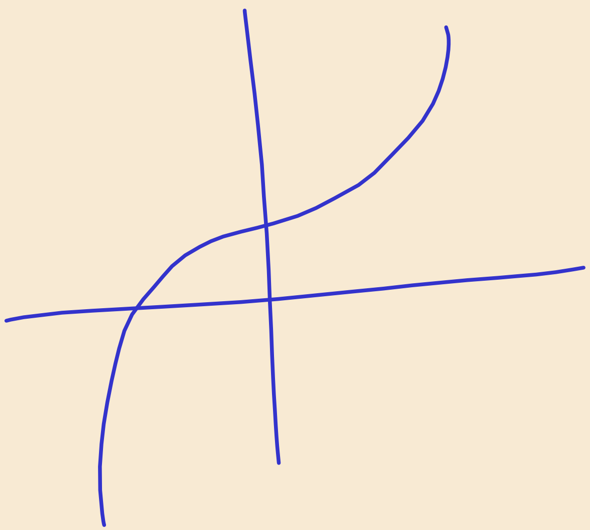
$(a_1 x)' = a_1$

$f''(0)$ $\cancel{2 \cdot 1 \cdot}$ $3!$

$a_2 = \dfrac{f''(0)}{2 \cdot 1}$

$3 \cdot 2 \cdot 1 \cdot a_3$ a_1

$$f(x) \approx f(0) + \frac{f'(0)}{1!} \cdot x^1 + \frac{f''(0)}{2!} \cdot x^2 + \dots$$



$$\sum_{i \geq 1}^{\infty} \frac{f^{(i)}(0)}{i!} \cdot x^i$$

$f(x_0)$

$\cancel{x} = a$

$$\underline{P_n(x)} = f(a) + f'(a)(x-a) + \frac{f''(a)}{2!}(x-a)^2 + \dots$$

~~פונק~~

$1 \dots \sin(0)$

n

$$f(x) = P_n(x) + [illegible]$$

$e^x = 1 + \frac{1}{1}x + \frac{x^2}{2!}$ $a_0 = f(0)$ $a_1 =$

$P_3(0)$ $\quad \underline{a_0} + \underline{\boxed{a_1}x} \cdots$

e^x e 0

$a_1 = \frac{e^x}{1!}$ $\quad (e^x)' = e^x$

$a_2 = \frac{e^x}{2!}$

$$\sum_{k=0}^{\infty} \frac{x^k}{k!}$$

e^1

$\underline{2.71\ldots} = 1 + 1 + \frac{1}{2} +$

f''''

$\underline{\sin x}$

$1 \to \cos x$

$2 \to -\sin x$

$3 \to -\cos x$

$4 \to \sin x$

$5 \to$

$\frac{1}{x}, -\frac{1!}{x^2}, \frac{2!}{x^3}, -\frac{3!}{x^4}$

$\underline{\ln x} \; (-1)^n$

$\frac{1}{x}$ $\quad 2 \frac{4!}{\cancel{x^5}}$

x^{-1} $\quad -6 \cdot \frac{1}{x^4}$

$-\frac{1}{x^2}$

$-3 \cdot 2 \cdot 1 = -3!$

$-x^{-2} + 2x^{-3}$ $\quad \frac{2}{x^3}$