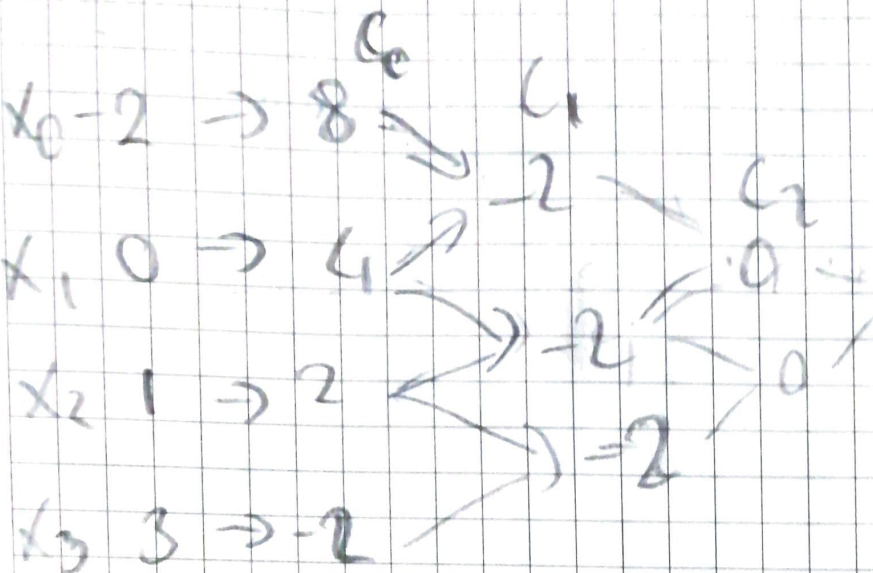

$$P(x) = C_0 + C_1(x-x_0) + C_2(x-x_0)(x-x_1) + C_3(x-x_0)(x-x_1)(x-x_2)$$

$$P(x) = 8 - 2(x+2)$$

$$= 4 - 2x$$

$f(x) = 3x^3 + x^2 - x - 5$ $f'(x) = 9x^2 + 2x - 1$

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

$x(0) = -1$

$x(1) = -1 - \frac{f(-1)}{f'(-1)} = 0$

$x(2) = -5$

$x(3) = -3,964$

$x(4) = -2,25$

$x(5) = -1,45$

$x(6) = -0,753$

$x(7) = 1,15$

$x(8) = 1,169$

$x(9) = 1,169 \Rightarrow f(x(9)) \simeq 0$

2.34	0.85866
2.37	0.86289
2.38	0.8671
2.39	0.87129

$f'(x) \approx \frac{f(x)-f(x-h)}{h}$ ← Backwards diff

$f'(x) \approx \frac{f(x+h)-f(x)}{h}$ ← Forwards diff

$f'(x) \approx \frac{f(x+h)-f(x-h)}{2h}$ ← Central diff

BD → $f'(2.38) = \frac{0.8671 - 0.86289}{0.1} = 0.419$

FD → $f'(2.38) = \frac{0.87129 - 0.8671}{0.1} = 0.4209$

CD → $f'(2.38) = \frac{0.87129 - 0.86289}{0.2} = 0.422$

BD $f''(x) = \frac{\frac{f(x)-f(x-h)}{h} - \frac{f(x-h)-f(x-2h)}{h}}{h}$

BD $f''(2.38) = -0.0415$

$$\int_a^b p(x)\,dx = \frac{b-a}{6}\left(f(a) + 4f\left(\frac{a+b}{2}\right) + f(b)\right)$$

$$\int_0^1 x^2\,dx = \int_0^{0.5} x^2\,dx + \int_{0.5}^1 x^2\,dx = 0.333$$

$$= \sum_{i=0}^{n-1} \int_{i/n}^{\frac{i+1}{n}} x^2\,dx$$

$$\sum_{i=0}^{n} \int_{i/2}^{\frac{i+1}{2}} \frac{\frac{i+1}{2} - i/2}{6}\left(f(i/2) + 4f\left(\frac{i/2 + \frac{i+1}{2}}{2}\right) + f\left(\frac{i+1}{2}\right)\right.$$