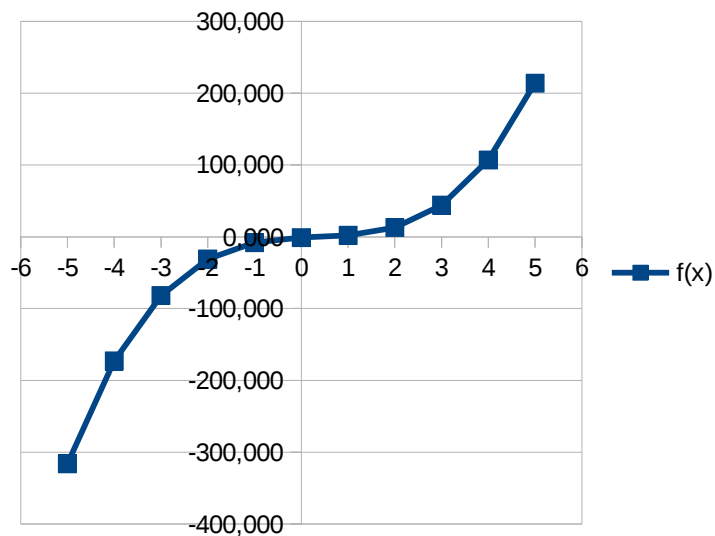


Exercício 2 Calcular a raiz positiva do polinômio pelo método de Newton para polinômios

a) Grafico

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

x	f(x)
-5	-316,000
-4	-173,000
-3	-82,000
-2	-31,000
-1	-8,000
0	-1,000
1	2,000
2	13,000
3	44,000
4	107,000
5	214,000



$$e = 0,0001$$

$$P'(x) = 6x^2 - 4x + 3$$

b) Solução

a5	a4	a3	a2	a1	a0
		2	-2	3	-1

Passo 1	x1	0,5			
b5	b4	b3	b2	b1	b0 (P)
		2,00000	-1,00000	2,50000	0,25000

$$b_4 = a_4$$

$$b_3 = a_3 + b_4 c$$

c5	c4	c3	c2	c1 (P')
		2,00000	0	2,5

$$c_4 = b_4$$

$$c_3 = b_3 + c_4 c$$

$$x_i - P(x)/P'(x)$$

x	b0 (P)	c1 (P')	x _{i+1}	Tolerancia	Erro x _{i+1} - x _i
0,5	0,25000	2,5	0,40000	0,0001	0,1000000
Referencia	0,250	2,500			

Passo 2	x2	0,40000			
b5	b4	b3	b2	b1	b0 (P)
		2,00000	-1,20000	2,52000	0,00800

c5	c4	c3	c2	c1 (P')
		2,00000	-0,4	2,36

$$x_i - P(x)/P'(x)$$

x	b0 (P)	c1 (P')	x _{i+1}	Tolerancia	Erro x _{i+1} - x _i
0,40000	0,00800	2,36	0,39661	0,0001	0,0033898
Referencia	0,008	2,360			

Passo 3	x3	0,39661			
b5	b4	b3	b2	b1	b0 (P)
		2,00000	-1,20678	2,52138	0,00000

c5	c4	c3	c2	c1 (P')
		2,00000	-0,41355932	2,3573571

$$x_i - P(x)/P'(x)$$

x	b0 (P)	c1 (P')	x_{i+1}	Tolerancia	Erro x_{i+1} - x_i 	
0,39661	0,00000	2,3573571	0,396608	0,0001	0,0000019	FIM!
Referencia	0,000	2,357				

Resposta **0,39661** **P(x)=** 0,00000

Tools → Goal seek

x	f(x)
0,396608	0,0000

