Cálculo Numérico: Gabarito de Método de Newton

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1. (a) $\bar{x} = 2.00455764, x_1 = 2.9, x_2 = 2.13965517, x_3 = 2.00455764, x_4 =, \varepsilon = 0.13509752$
   (b) $\bar{x} = -0.59259259, x_1 = -2, x_2 = -1.33333333, x_3 = -0.88888888, x_4 = -0.59259259, \varepsilon = 0.44444444$
   (c) $\bar{x} = 1.51677444, x_1 = 4.05633802, x_2 = 2.78897669, x_3 = 1.98704642, x_4 = 1.51677444, \varepsilon = 0.47027$
   (d) $\bar{x} = 0.00129550, x_1 = 0.57619047, x_2 = 0.21063156, x_3 = 0.03604670, x_4 = 0.00129550, \varepsilon = 0.03535119$
   (e) $\bar{x} = 2.92 \times 10^{-13}, x_1 = -0.55740772, x_2 = 0.06593645, x_3 = -0.00009752, x_4 = 2.92 \times 10^{-13}, \varepsilon =$
2. (a)
   (b)
   (c)
   (d)
   (e)
3. (a)
   (b)
   (c)
   (d)
   (e)
   (f)
   (g)

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4. (a)
   (b)
   (c)
   (d)
5. $\bar{x} = 3.14149311, x_1 = 3.14079632, x_2 = 3.14119449, x_3 = 3.14139367, x_4 = 3.14149311, \varepsilon = |x_4 - x_3| = 0.00009954$
6. (a) $f'(x) = 2e^{2x}(x^3 - 15x^2 + 1) + e^{2x}(3x^2 - 30x)$
   (b) $a = -1$, $b = 0.1$ portanto $f(a) = -2.03002924$ e $f(b) = 1.03941374$
   (c) $x_2 = -0.175$

(d) $\bar{x} = x_2 = -0.256023160108161823$

k	x_k	$f(x_k)$	$f'(x_k)$	$\varepsilon = \lvert f(x_k)\rvert$
0	-0.175	0.37719531077	4.5187463108	0.37719531077
1	-0.25847344259	-0.011566602376	4.7205179167	0.011566602376
2	-0.25602316010	2.112113888E-7	4.7206374662	2.112113888E-7