⑥ $X = \frac{200\,300\,5 + 200\,330\,3 + 110\,170\,4 + 520.280\,3 + 180.60\,5}{300.5 + 330\,3 + 170.4 + 280.3 + 60.5}$

$X = \frac{1063600}{4310} = 246,775$

$Y = \frac{100.300.5 + 400.330.3 + 550.170.4 + 50.280\,3 + 400.60\,5}{4310}$

$Y = \frac{1082000}{4310} = 251,044$

Localização = [246,77; 251,04]

⑦ $X = \frac{70\,20000 + 110\,40000 + 130\,15000}{20000 + 40000 + 15000} = 103,33$

$Y = \frac{150.20000 + 90.40000 + 20\,15000}{75000} = 92$

Localização = [103,33; 92]

⑧ $X = \frac{10\,15000 + 50.25000 + 70\,34000 + 10.20000}{15000 + 25000 + 34000 + 20000} = 42,34$

$Y = \frac{40\,15000 + 60\,25000 + 10\,34000 + 20\,20000}{94000} = 30,21$

Localização = [42,34, 30,21]

(9) $X = \frac{100.4000^3 + 400\,3000.1 + 100.4000^3}{4000^3 + 3000^1 + 4000^3} = 133,33$

$y = \frac{200\,4000^3 + 100\,3000^1 + 100\,4000^3}{27000} = 144,44$

Localização = $[133,33 , 144,44]$

(10) (X) $220 \leq \frac{600.500 + 200.d + 400.800}{500 + d + 800}$

$110\,000 + 220d + 176\,000 \leq 300\,000 + 200d + 320\,000$

$d \leq \frac{334000}{20} \Rightarrow d \leq 16700$

ou

(Y)

$450 \leq \frac{700\,500 + 500.d + 200.800}{500 + d + 800}$

$225\,000 + 450d + 360\,000 \leq 350\,000 + 500d + 160\,000$

$d \geq \frac{75000}{50} \Rightarrow d \geq 1500$ (menor demanda)

$1500 \leq d \leq 16700$

(11) (a) $CT_A = 10000 + 100000,36 \Rightarrow CT_A = 46\,000$

$CT_B = 15000 + 100000,23 \Rightarrow CT_B = 38\,000$

(b) $nA = \frac{10000}{0,72 - 0,36} \Rightarrow nA = 27\,777,78$

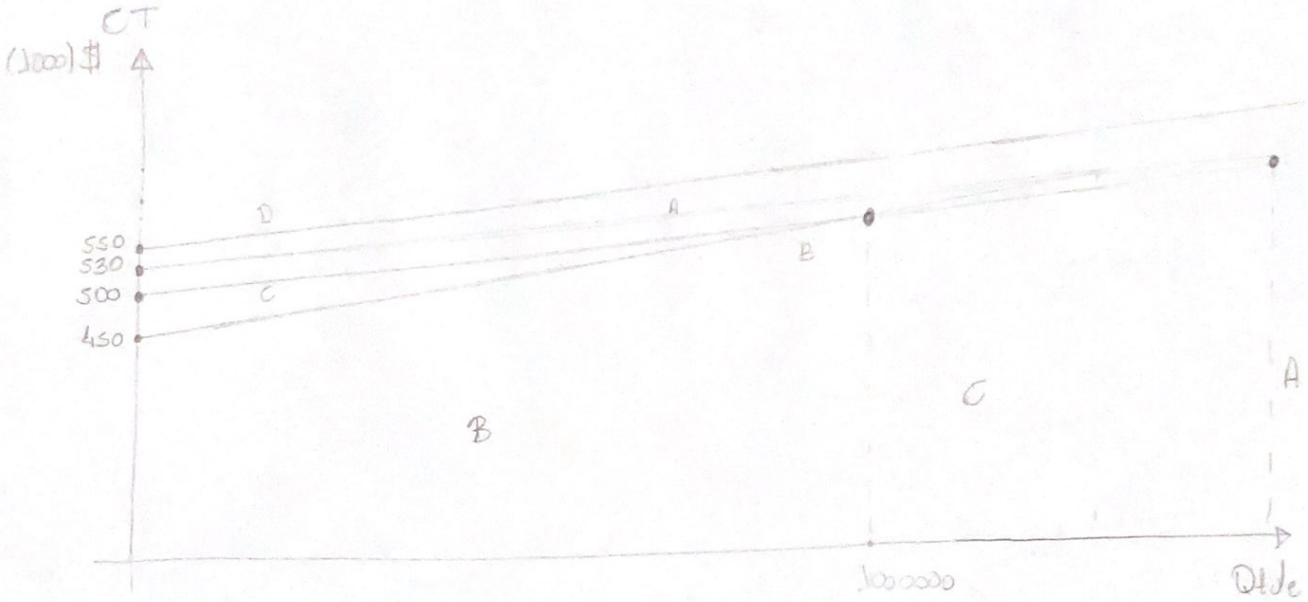
$nB = \frac{15000}{0,72 - 0,23} \Rightarrow nB = 30612,24$

(12) $CT_A = 530\,000 + 1,20X$

$CT_B = 450\,000 + 1,8X$

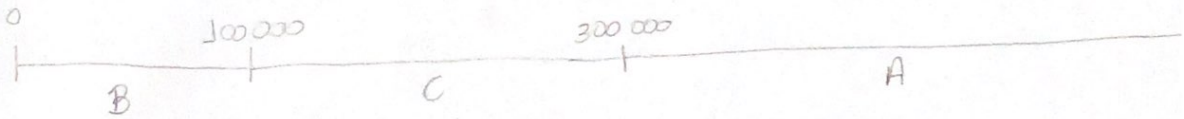
$CT_C = 500\,000 + 1,3X$

$CT_D = 550\,000 + 1,5X$



$B \Rightarrow C \Rightarrow 450\,000 + 1,8X = 500\,000 + 1,3X \Rightarrow X = 100000$ unidades

$C \Rightarrow A \Rightarrow 500000 + 1,3x = 530\,000 + 1,2x \Rightarrow X = 300\,000$ unidades



(13) Lucro A = $50\,000 \cdot (12 - 1,5)^{\cdot 12} - 500\,000 = 5800\,000$

Lucro QB = $50\,000\,(12 - 1,8)^{\cdot 12} - 300\,000 = \boxed{5820\,000}$ QB

$nA = \dfrac{500\,000}{12 - 1,5} = 47619,05$ unidades

$nQB = \dfrac{300\,000}{12 - 1,8} = 29411,76$ unidades

$500000 + 1,5X = 300\,000 + 1,8x$

$X = 666\,666,67$

Até o valor de X, escolhemos A e, acima desse valor, QB

(14) $L_A = 13500(60-25) - 320000 = 152500$ R$

$L_I = 15000(57-29) - 280000 = 140000$ R$

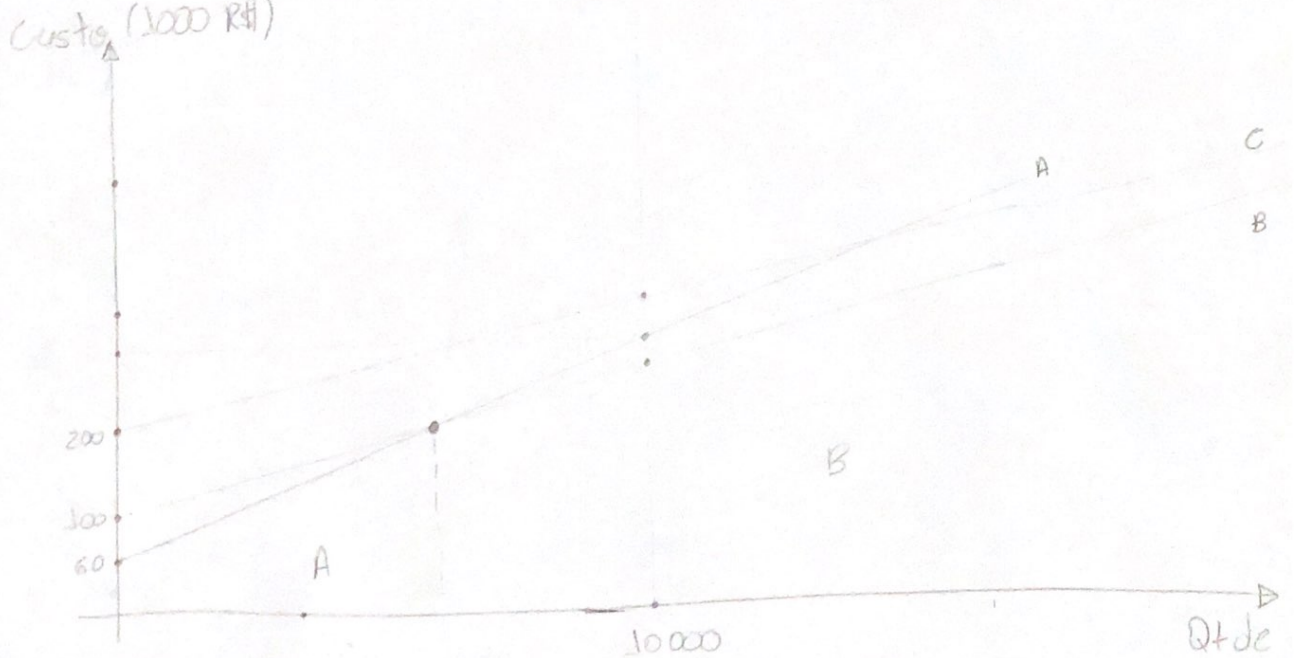
$L_{SF} = 17000(56-30) - 290000 = 152000$ R$

Melhor Localização: Araxá

(15) $CT_A = 20x + 60000$

$CT_B = 15x + 100000$

$CT_C = 10x + 200000$



$A = B \Rightarrow 20x + 60000 = 15x + 100000 \Rightarrow x = 8000$

$B = C \Rightarrow 15x + 100000 = 10x + 200000 \Rightarrow x = 20000$