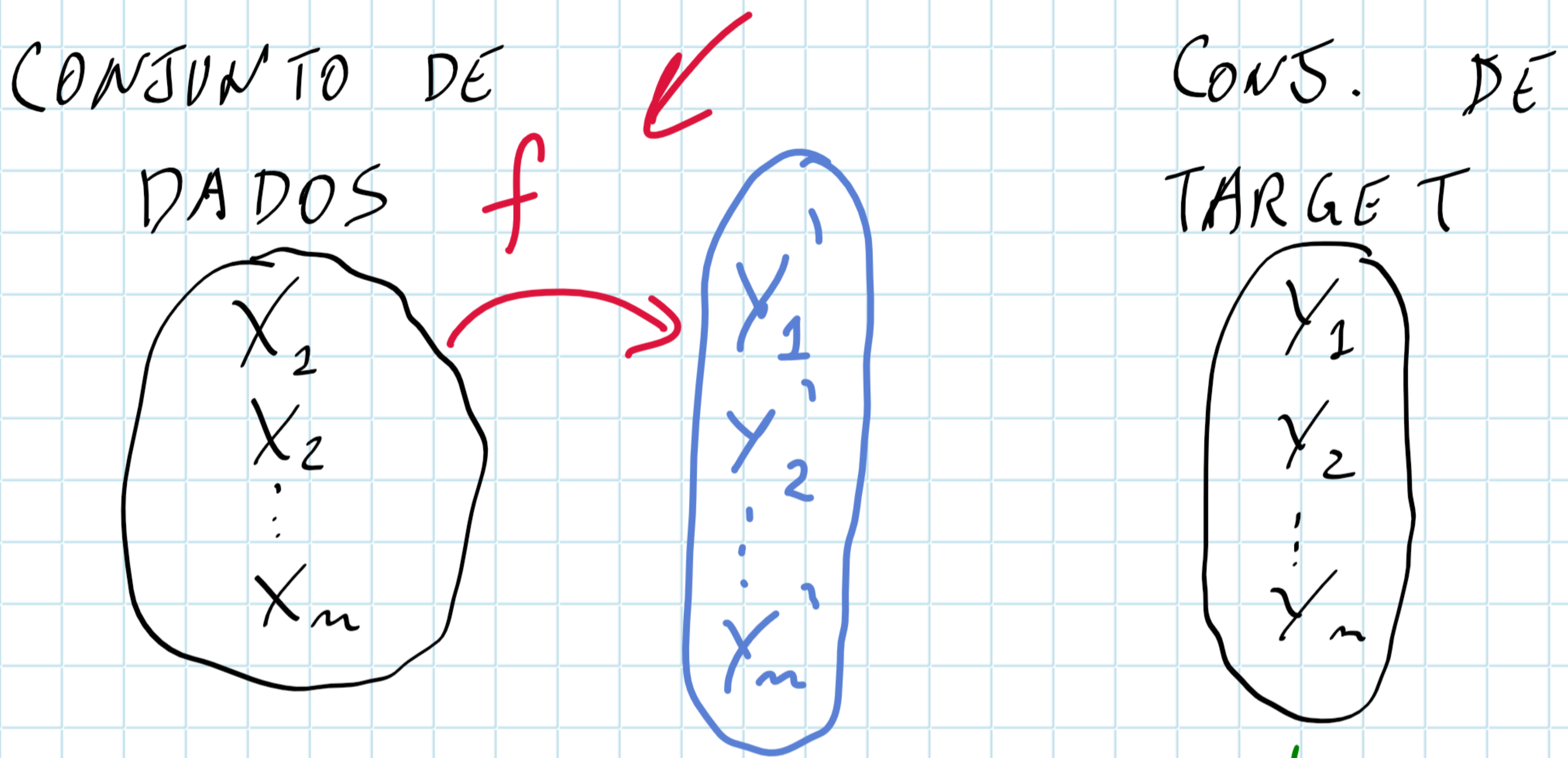


# GRADIENTE (OTIMIZAÇÃO)



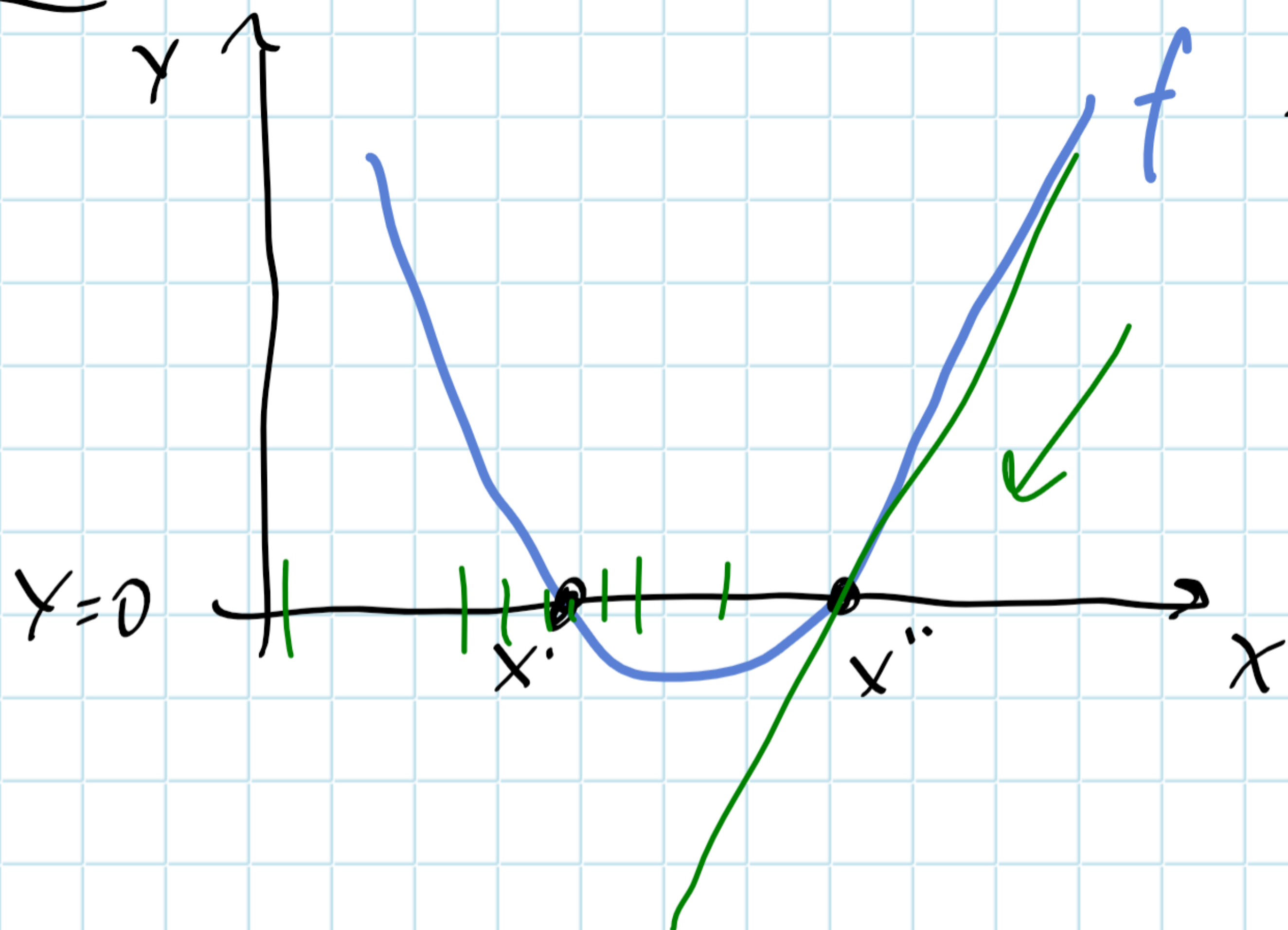
SEJA O  
MAIS IGUAL POSSÍVEL

↓  
A DIFERENÇA ENTRE  
ELES SEJA A MENOR POSSÍVEL.

★ MENOR ERRO ★



ENCONTRAR ZÉROS DE UMA FUNÇÃO.

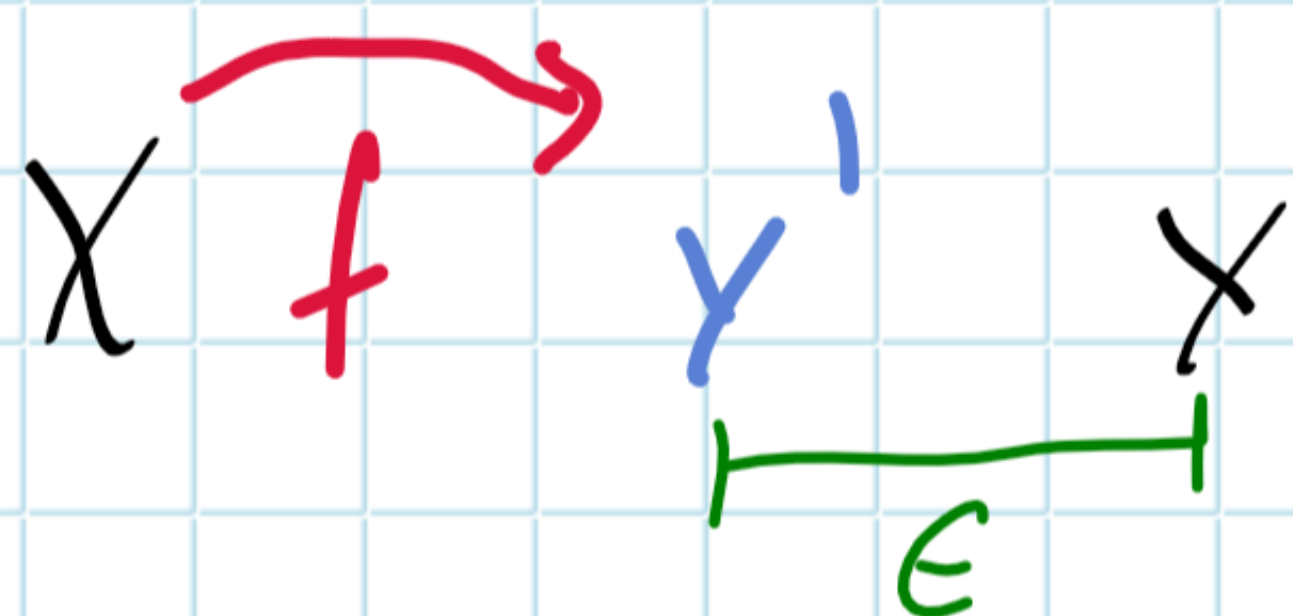


$$f(x) = ax^2 + bx + c$$

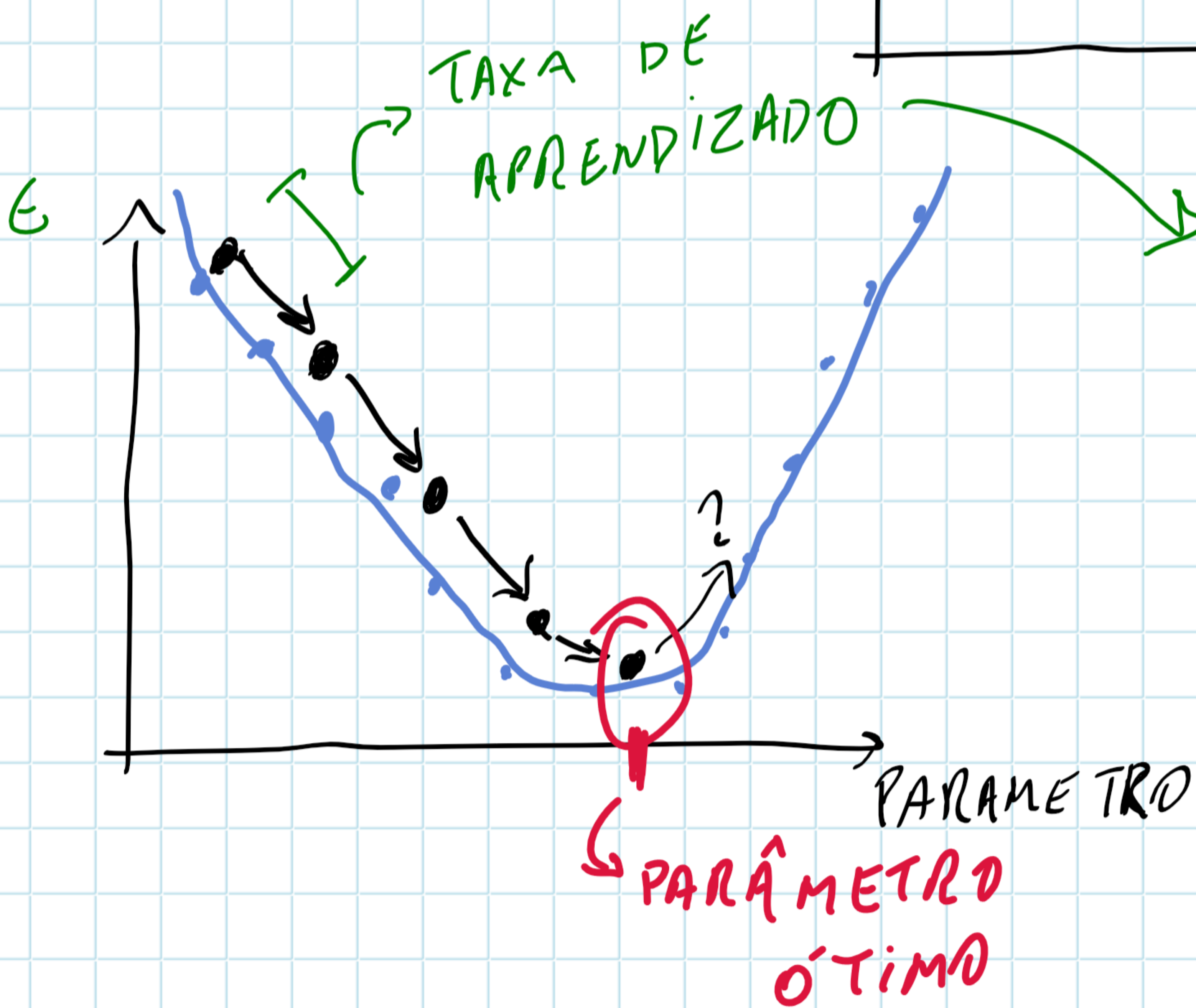
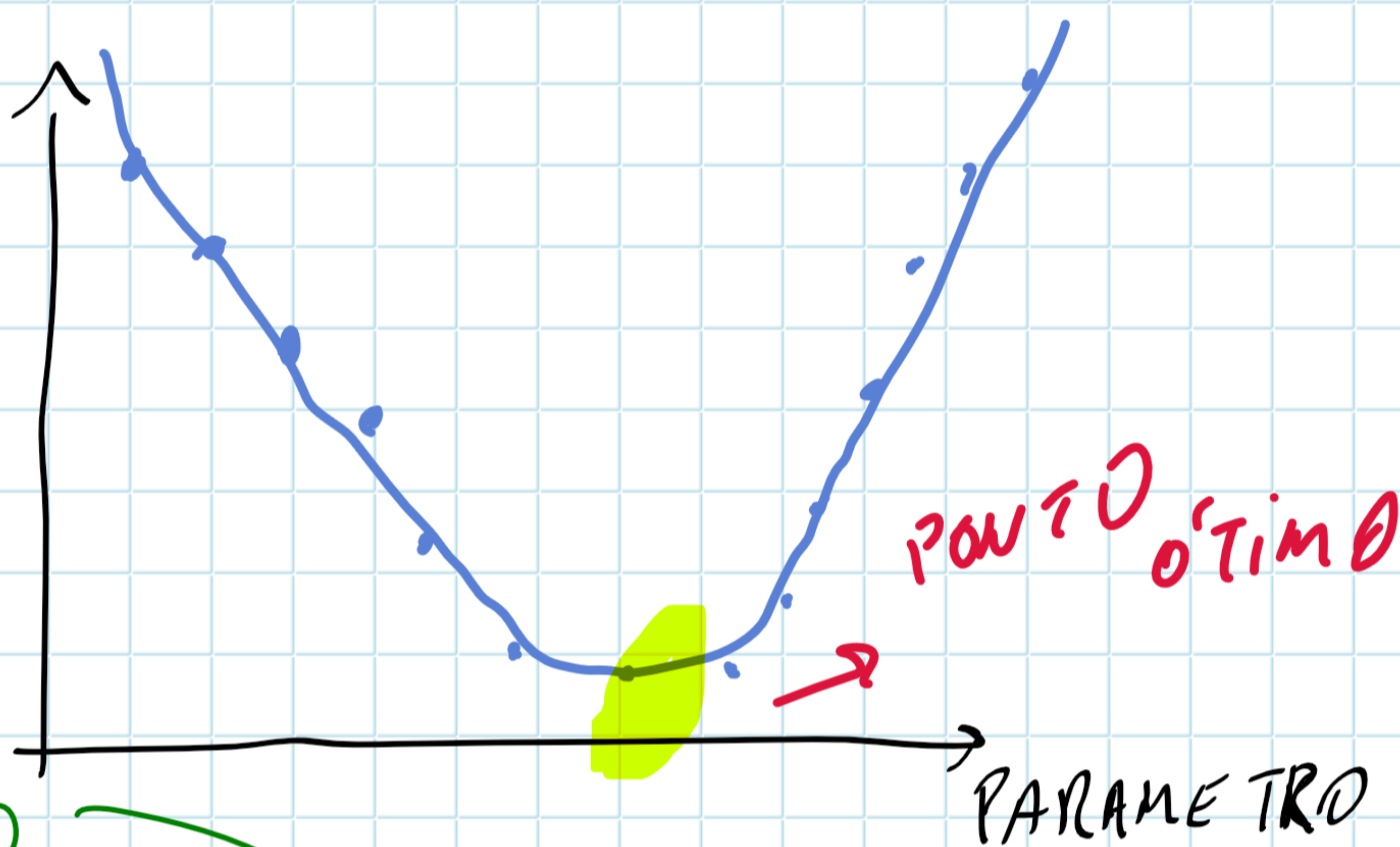
BASKHARA

$x'$   $x''$

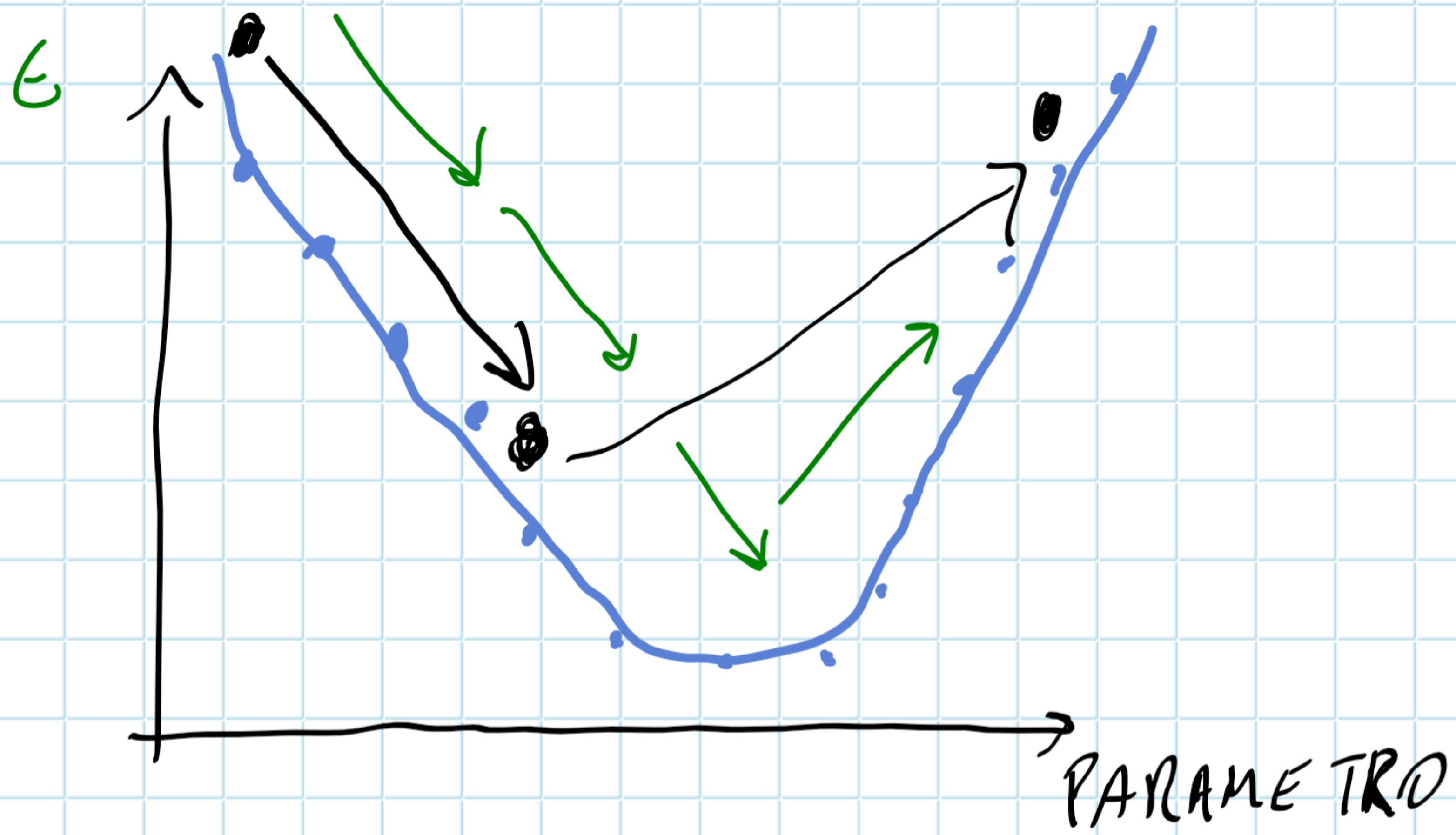
GRADIENTE DESCENDENTE



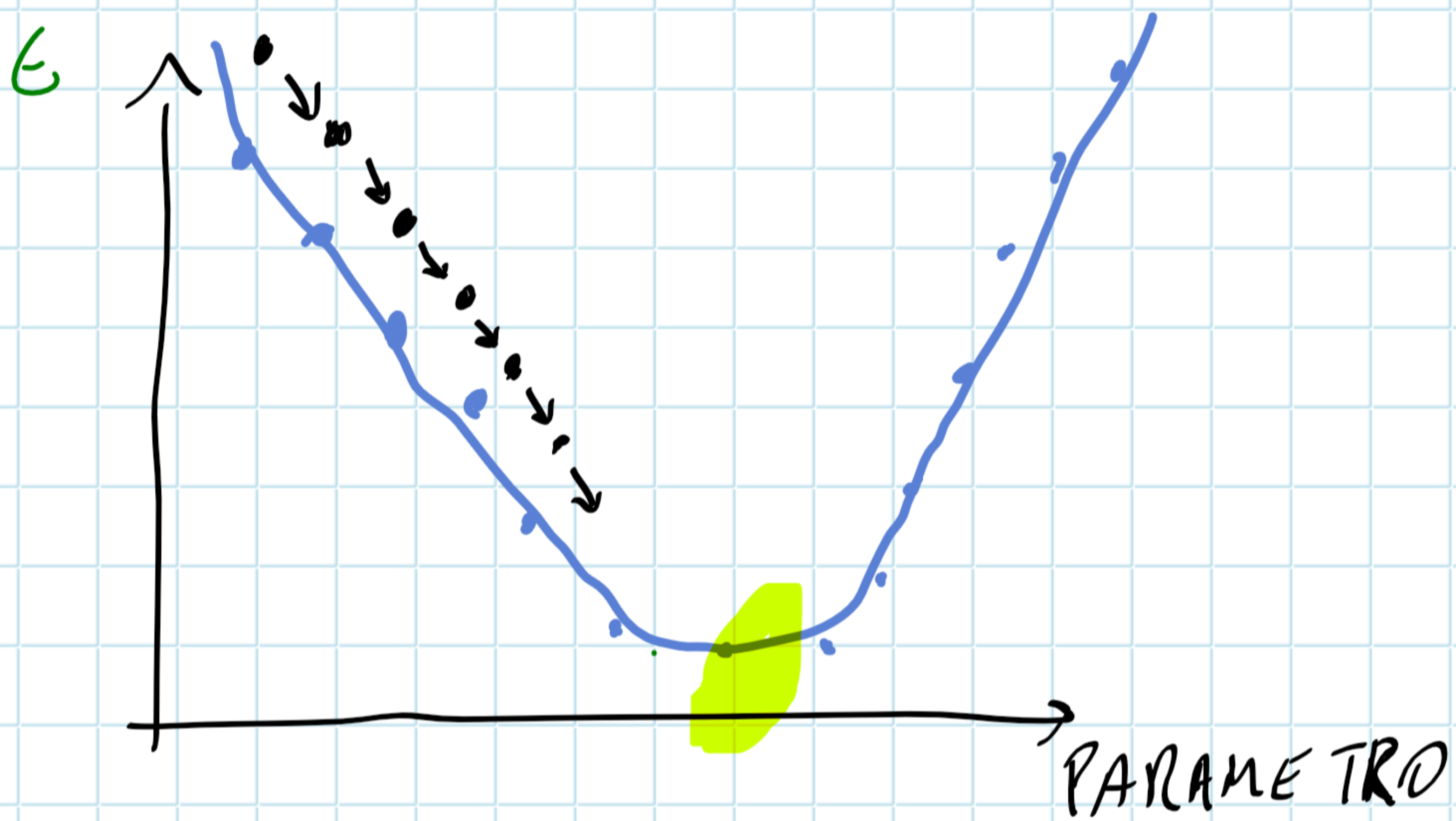
ε



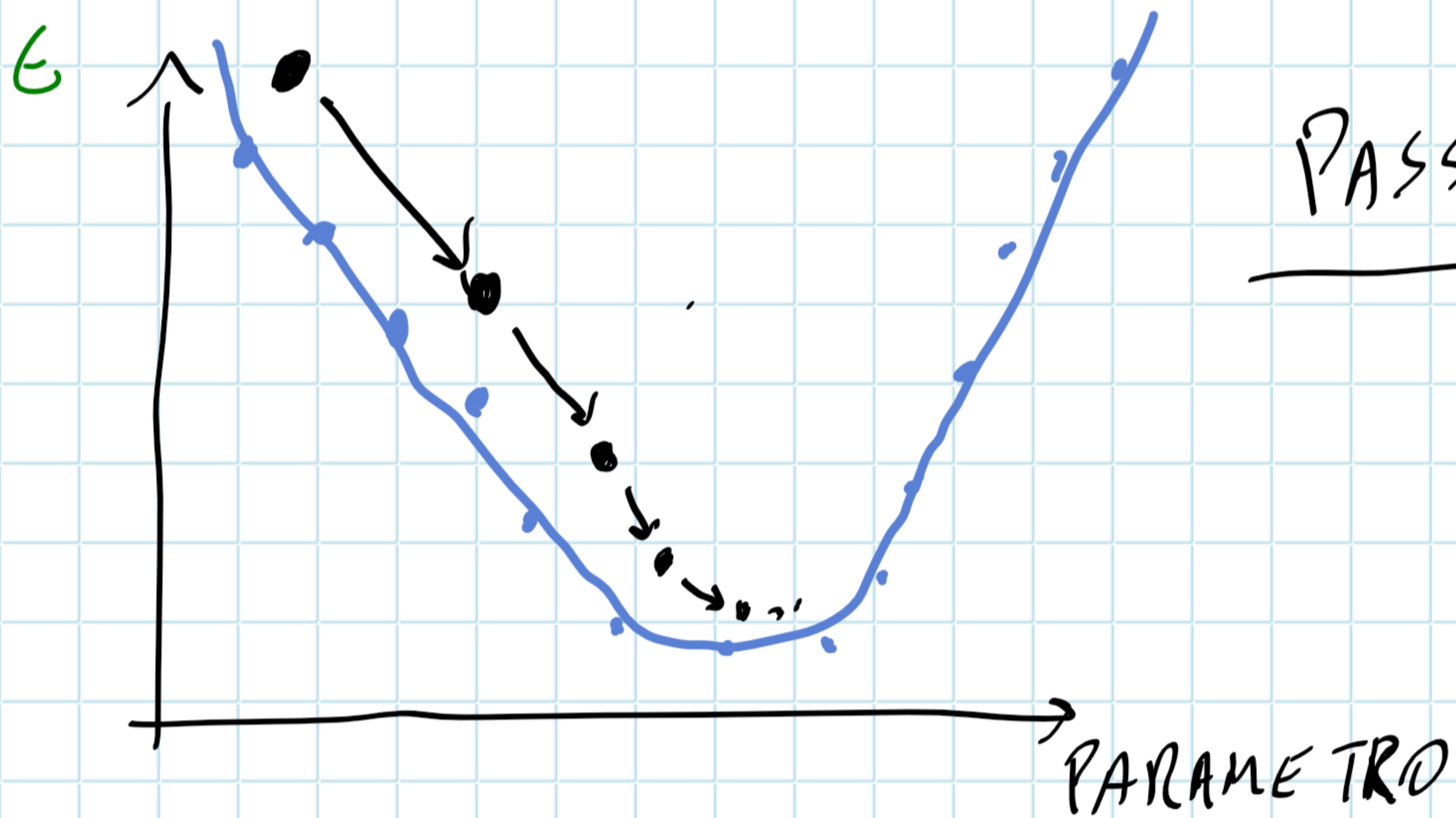




LEARNING  
RATE  
ALTO  
GRANDE



LEARNING  
RATE  
BAIXO  
PEQUENO



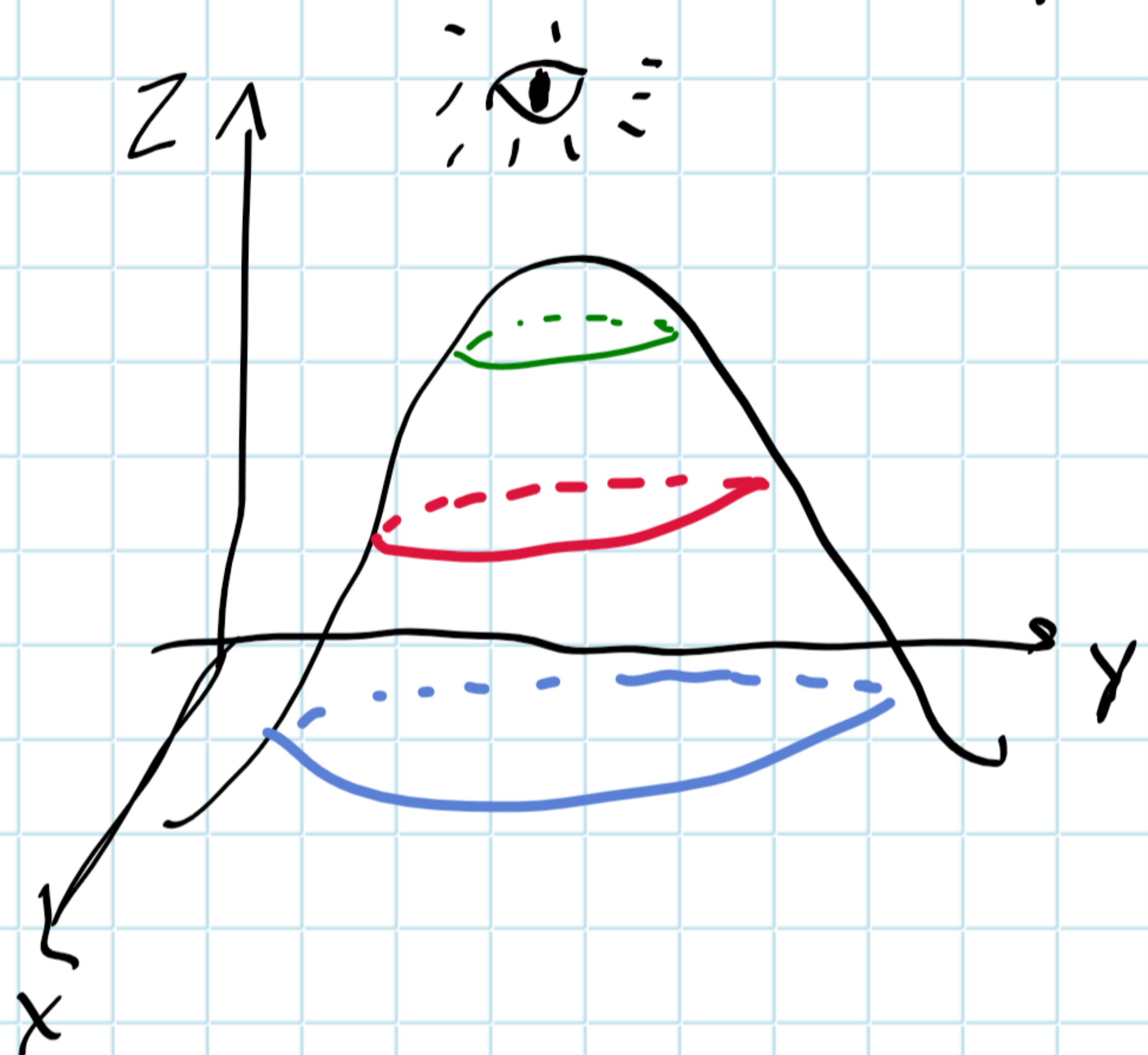
PASSOS DECRESCENTES



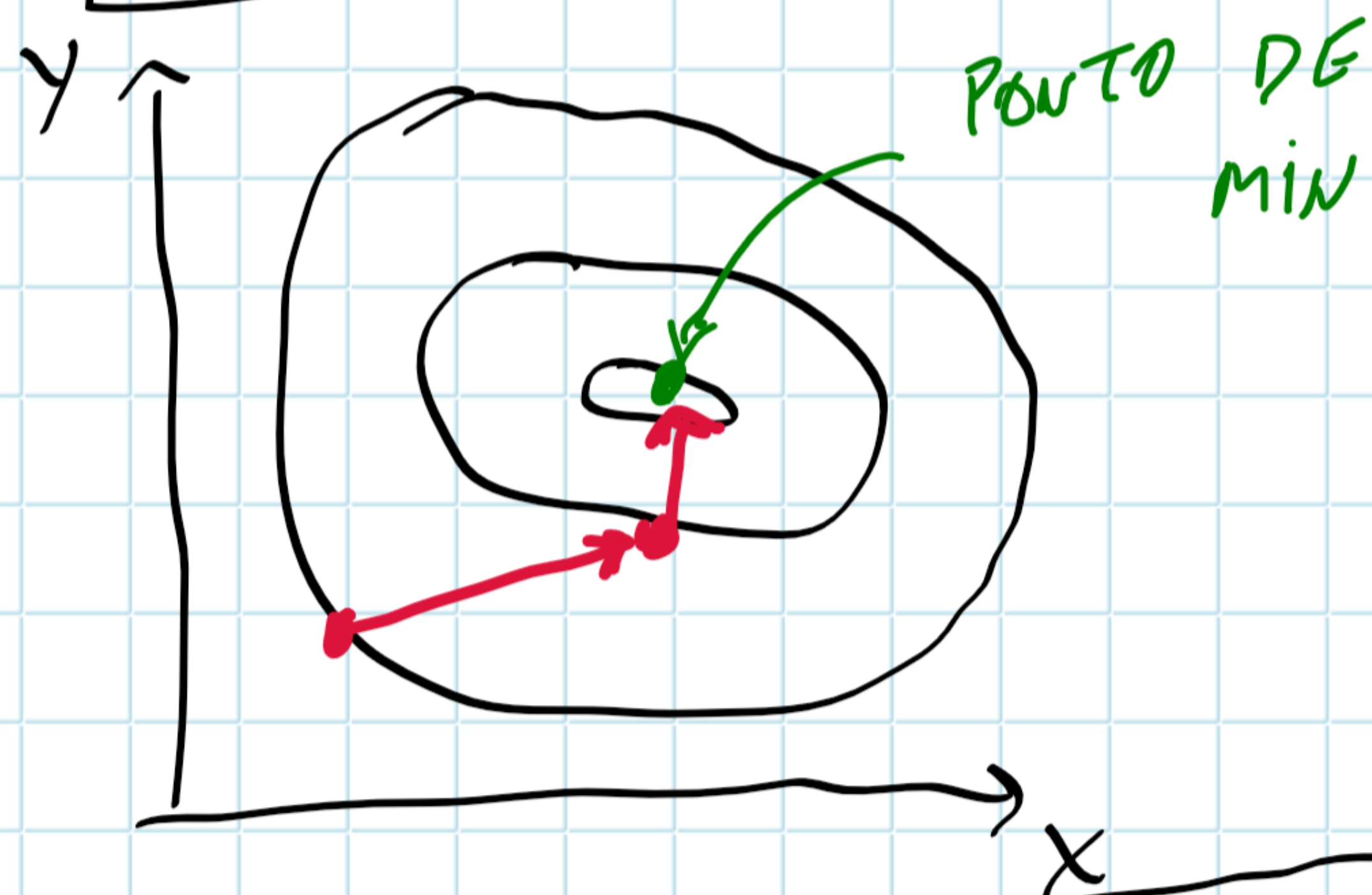
# GRADIENTE ESTOCÁSTICO.

6 AO INVÉS DE CALCULAR O ERRO EM TODOS OS PONTOS, SORTEAMOS 1 PONTO ALEATÓRIO

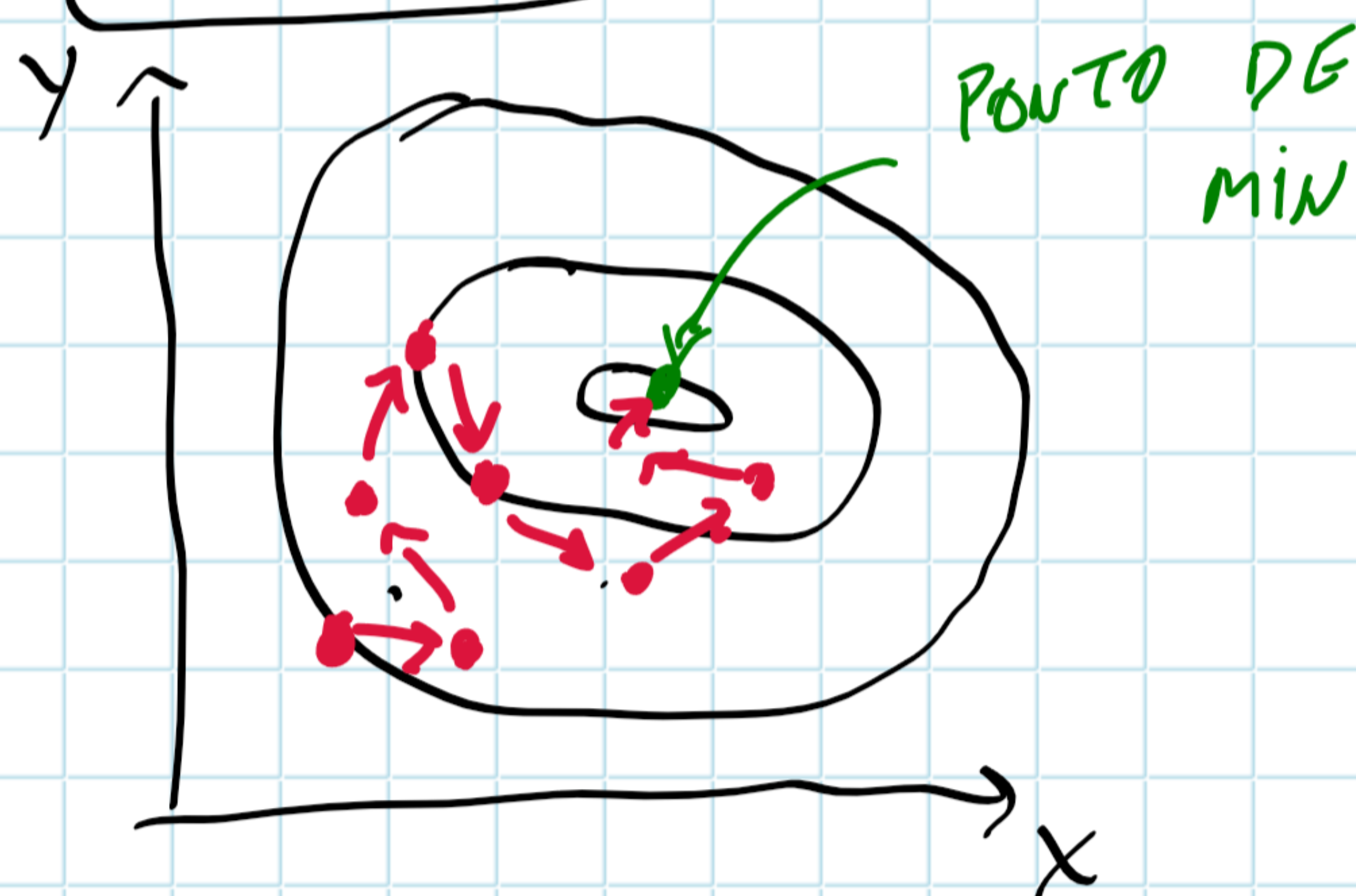
A CADA ITERAÇÃO.



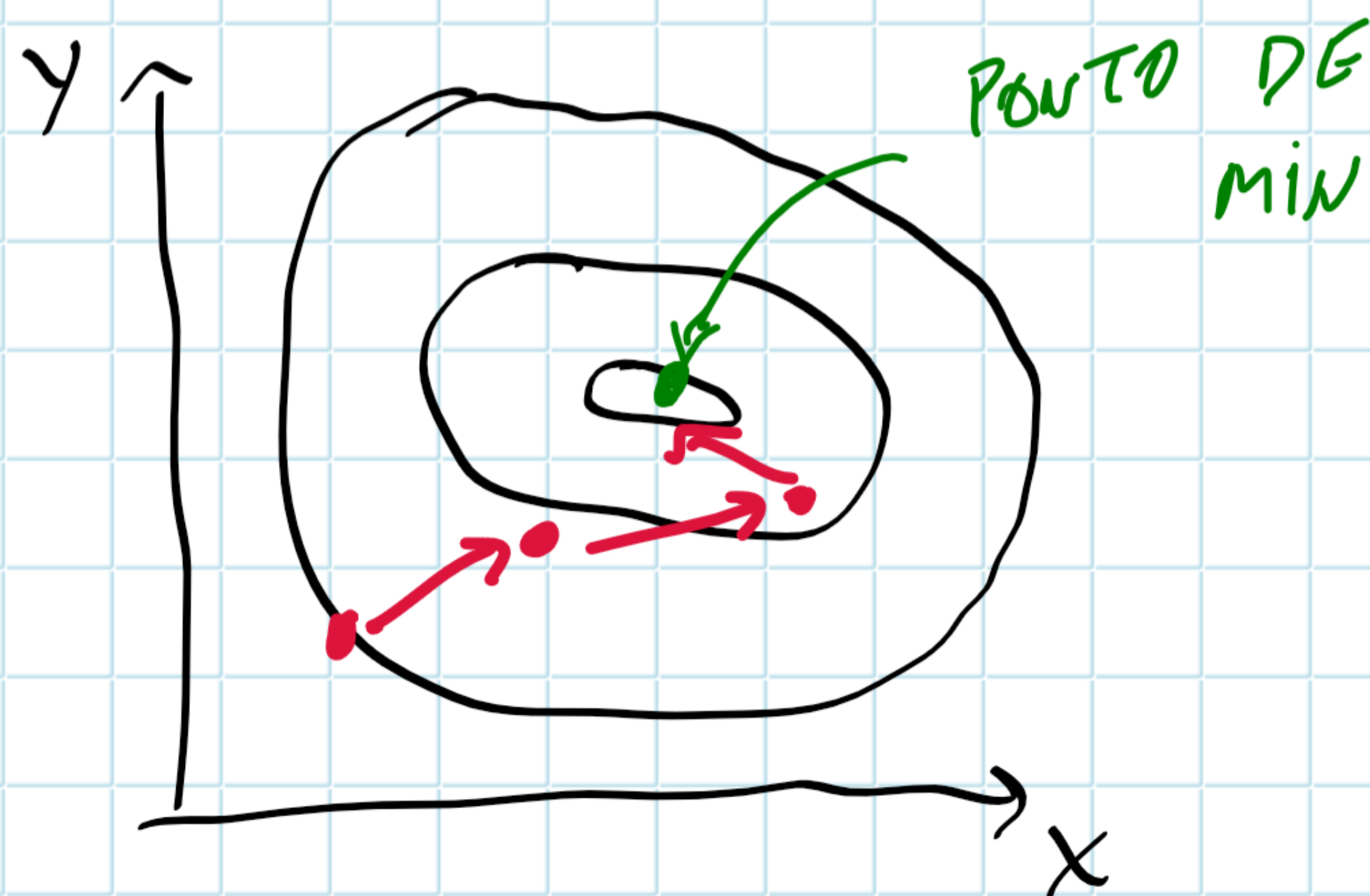
GRADIENTE DESCENDENTE



GRADIENTE ESTOCÁSTICO



GRADIENTE MINI-BATCH



CALCULO O ERRO PARA AMOSTRAS DE DADOS