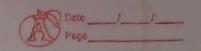
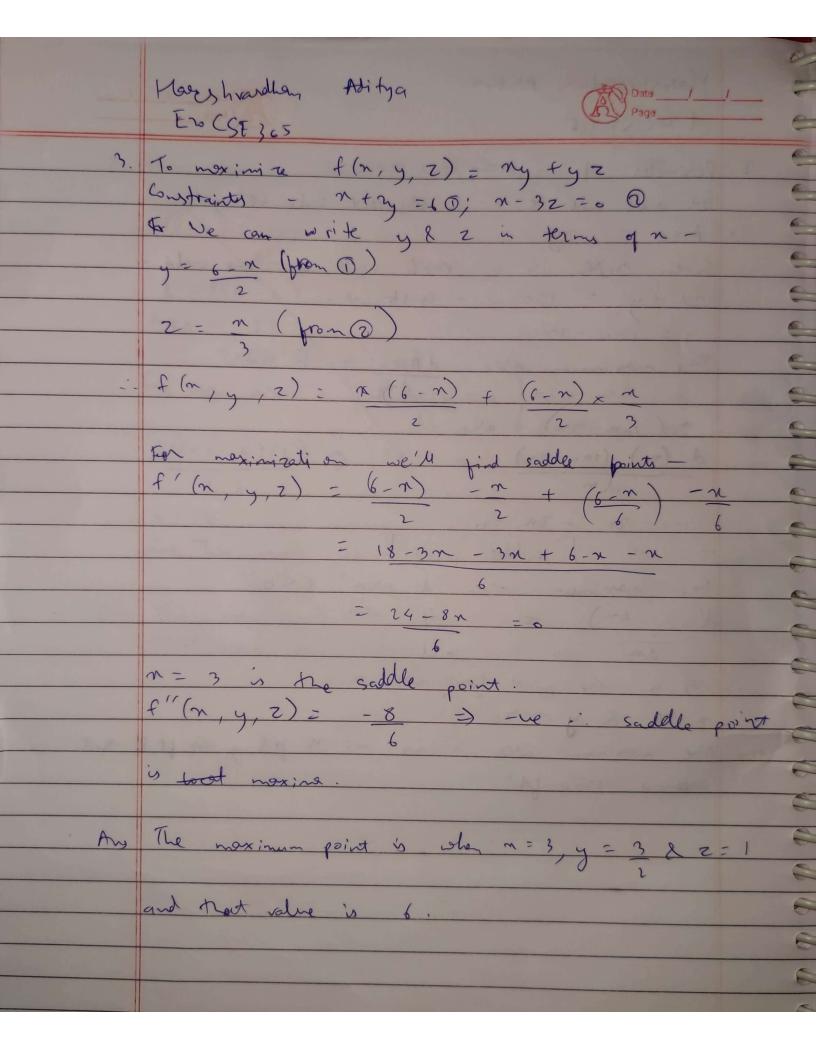
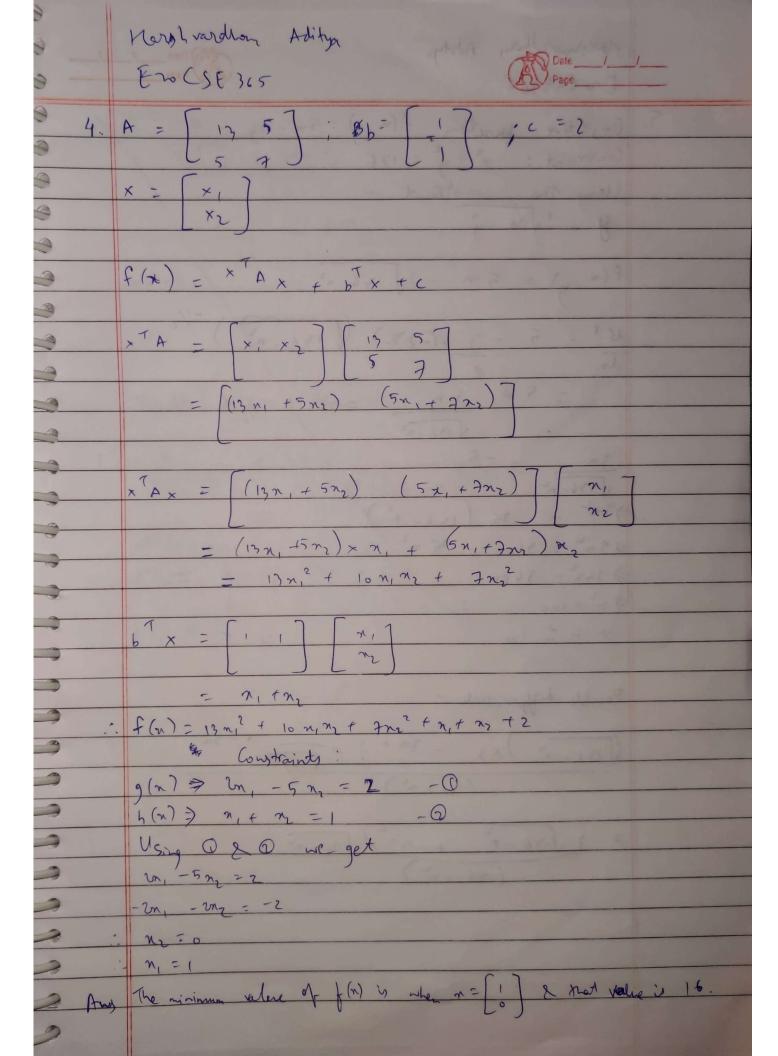
Marshvard han Aditya En CS = 365



SML lab Assignment 3 A.I. Let the edge length of square that is removed be x inch :. (12-22) (18-2x) (2) > Volume For maximum volutre d Vol = 0 $\frac{1}{2} \left(\frac{18-vn}{(n)} \right) - 2\left(\frac{12-vn}{(n)} \right) + \left(\frac{12-vn}{(n)} \right) \left(\frac{18-vn}{(n)} \right) = 0$ => -36 n +4n2 - 24 n +4n2 + 216 -60 n +4n2 =0 122 - 120x +216 =0 2 n - 10n + 18 = 0 Since we have to maximize volume, the sides connot be negative : 12-on > 0 -> 6>n bounds of x are o < n < 6 Solving nº - 10 n + 18:000e get 2 values Since a count be greater man 3.64.6 .: 2.95 is the only acceptable saddle point. f"(n) - 2n - 10 for local maximum 1"(nt) should be less non a f" (235) = 4.7-10 = -9.3 =) -ve It is a local maxima The noy, volume is when he = 2.35 > not value is = 228. 1619.

Marshvardhan Aditya ENCSE 365 2. Perimeter of greating le = 100 let one side be x & adjacent side be y Area = ny Given here is a rock wall on one side vn + y = 100 - 60-straint. For maximum alea dArea = 0 d (n) (100-2n) =0 r: 25 [sadelle point] For maximum area & Area " # <0 is the point for nexina The noximum are is for n= 15 pt 8 y = 50 pt 8 pet area is 1250 pt2





parswordham Aditya E 20 CS 8365 5. Objective function f(n, y) = 5n - 3yConstraint: $n^2 + y^2 = 136$ Using the constraint - $y = t\sqrt{136 - y^2}$ f(n,y) = 5 n - 3 / 136-n2 df 3 - 5 - 3 × (-2x) (136-n2) ~ = £ 10 Double differentiate 136-2)x} - 32x - 2 x Jiz6-22 2 3 5176-r + 7m / 5136-n2