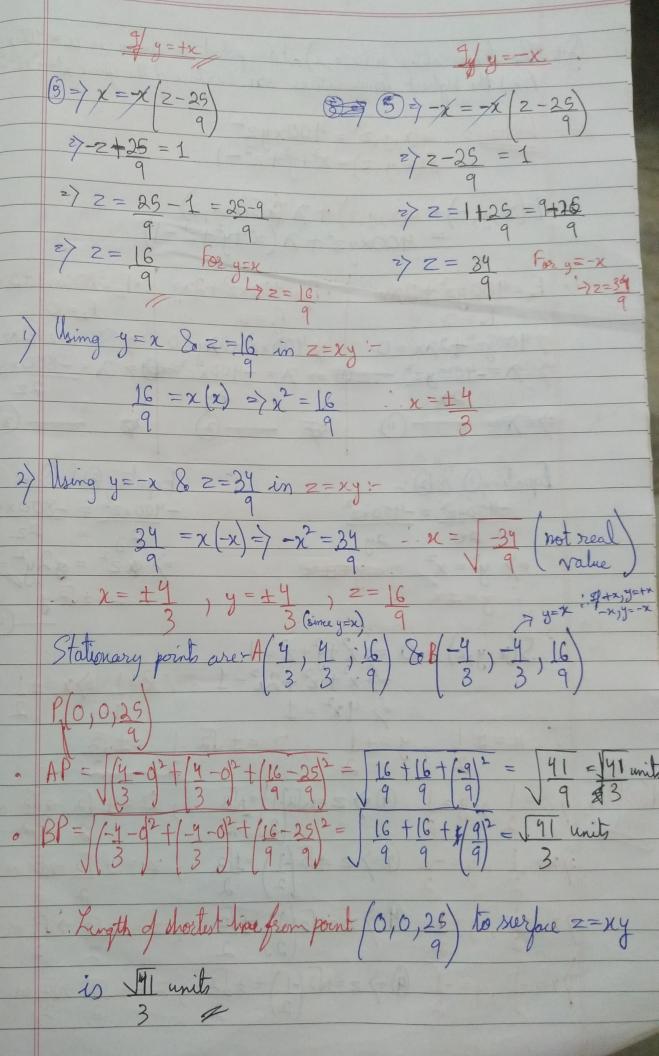
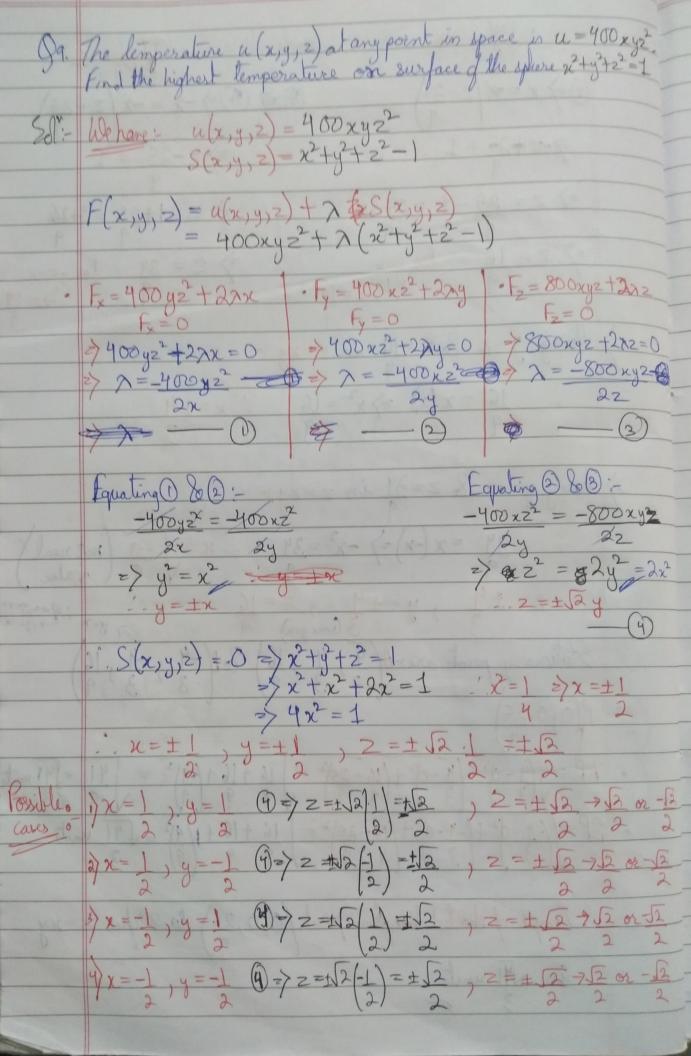
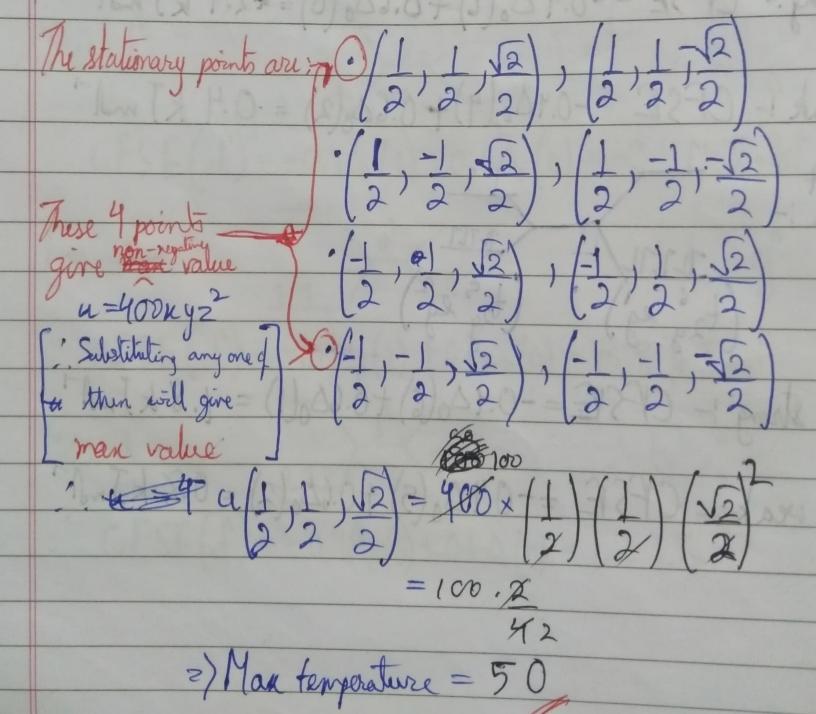
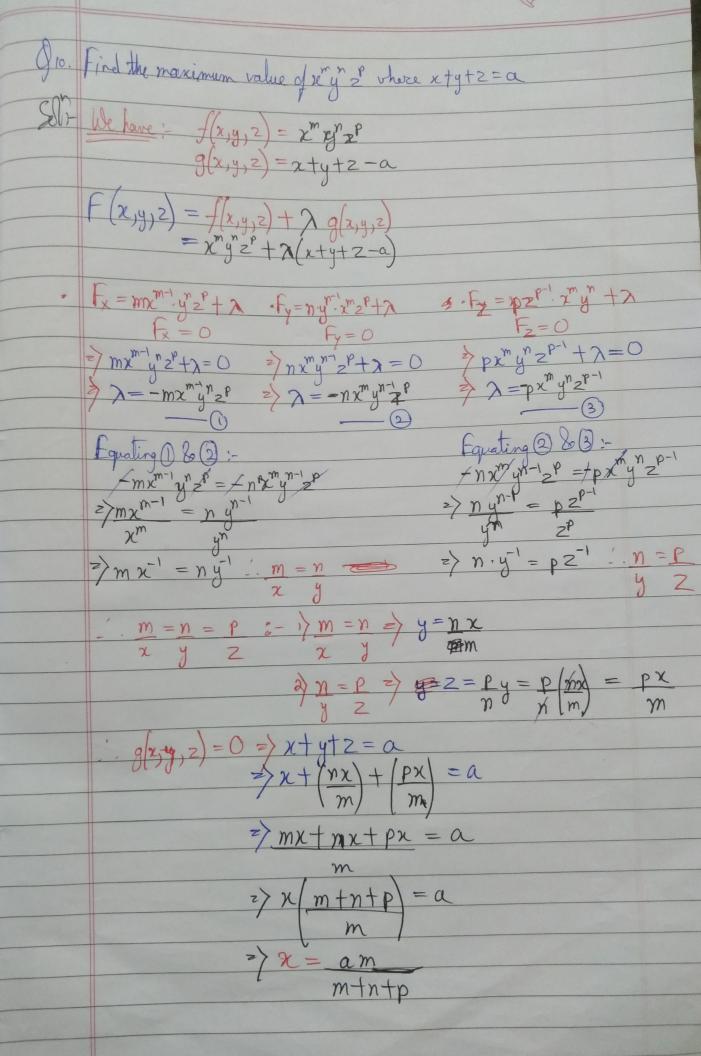
De Find the length of the shortest line from the point (0,0,25) to the surface Z=xy Sd: Lit (x, y, z) le point on surface z=xy De have: A(0,0,25) B(x, y, z) d= (x-0)+(y-0)+(z-25)  $\Rightarrow d = x^2 + y^2 + \left(2 - \frac{25}{9}\right)^2$ We have: - D(x,y,z)=x2+y2+(z-25)2 L(x,y,z) = z - xy $F(x,y,z) = D(x,y,z) + \lambda L(x,y,z)$   $= x^2 + y^2 + (2 - 25)^2 + \lambda (2 - xy)$  $F_{x} = 2x + \lambda(-y)$   $F_{y} = 2y + \lambda(-x)$   $F_{z} = 2(z-25) + \lambda$  $F_x = 0$   $F_y = 0$  $\frac{2}{7} + \frac{1}{7} = \frac{1}{7} = \frac{2}{7} = \frac{2}$ Equating 283 -124 = -2 (2-25) 2 Equating ( & ( ) >  $\frac{2x}{y} = \frac{2y}{x}$ 2> x2 = y2  $z > y = -x \left( 2 - 25 \right)$ 2) y = ±x -(4) A y=+x









mtntp m mtntp ationary point is m+n+p m+n+p · Maximum value is given mtn+p m+n+p m+n+p m+n+p an mtntp mtntp  $= \frac{a^m m^m}{(m+n+p)^m} \cdot \frac{a^n n^m}{(m+p+p)^m} \cdot \frac{a^p \cdot p^p}{(m+p+p)^m}$ 10  $= a^{m+n+p}$ (m+n+p)m+n+p