Geometry

1. Write the direction cosines of a line equally inclined to the three coordinates axes.

2. Find the equation of the plane determined by the points $A(3,-1,2), B(5,2,4)$ and $C(-1,-1,6)$. also find the distance of the point $P(6,5,9)$ from the plane.

3. Find the area of the region included between the parabola $y^2 = x$ and the line $x + y = 2$

4. The length x of a rectangle is decreasing at the rate of $5cm$/minute and the width y is increasing at the rate of $4cm$/minute. When $x = 8cm$and$y = 6cm$, find the rate of change of (a) the perimeter,(b) the area of the rectangle.