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Assignment 2

Question 1 and Question 2 is in the zip file.

Question 3

a) $P(d) = (x_2 - x_1, y_2 - y_1)$
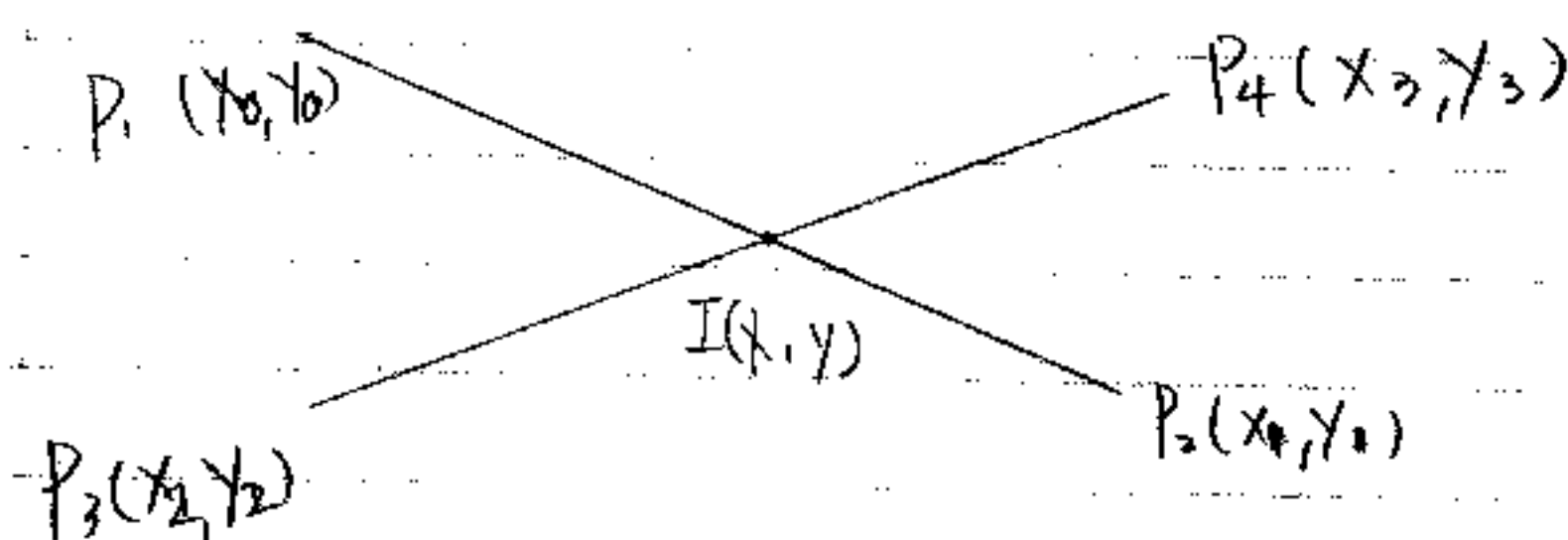
b) $x(d) = x_2 - x_1$
   $y(d) = y_2 - y_1$

C) The coordinate of intersection:
$y = ((y_0 - y_1)\cdot(y_3 - y_2)\cdot x_0 + (y_3 - y_2)(x_1 - x_0)y_0 + (y_1 - y_0)(y_3 - y_2)\cdot x_2 + (x_2 - x_3)$
$\cdot(y_1 - y_0)\cdot y_2) / ((x_1 - x_0)\cdot(y_3 - y_2) + (y_0 - y_1)\cdot(x_3 - x_2))$

$x = x_2 + (x_3 - x_2)(y - y_2)/(y_3 - y_2)$

D) After we found the x and y coordinate of the intersection point. We need to find $(y_0 - y_1)$, if $(y_0 - y_1)$ is positive, we compare y and y_0, if $y_0 > y$, the point is between P_1 and P_2.

Question 4

For any three vector a, b, c if $ab + bc = ac$, we say the three points are collinear.
So If the dot product of ab, bc, ac is not in the from $ab + bc = ac$. So than a, b, c are able to determine

a triangle.

Question 5.

For any of 4 vectors a, b, c, d, we have $ab = (x_a - x_b, y_a - y_b, z_a - z_b)$ and ac and ad. If any three of them satisfy the condition $ab \times ac \times ad = 0$ then we say, those vectors are coplanar. otherwise, they are not.

Question 6 is in the zip file