Lista 1 - Aluno: Guilherme D. Leal

① $A = (-1, 3) \quad B = (6, -1)$

$$d(P,Q) = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$
$$d(P,Q) = \sqrt{(6-(-1))^2 + (-1-3)^2}$$
$$d(P,Q) = \sqrt{49+16} = \sqrt{65} = 8,0622$$

② $M = \left(\frac{x_P + x_Q}{2}, \frac{y_P + y_Q}{2}\right) \Rightarrow \left(\frac{-1+6}{2}, \frac{3-1}{2}\right)$

$$M = \left(\frac{5}{2}, \frac{2}{2}\right) \qquad M = (2.5, 1)$$

③ $$m = \frac{y_Q - y_P}{x_Q - x_P} = \frac{3+1}{-1-6} = \frac{4}{-7} = -0,571$$

④ $m = -0,571$

$$n = -0,571 \cdot -1 + n \qquad V = mx + n$$
$$m = 2,429 \qquad y = -0,57x + 2,43$$

⑤ $m = -0,571$

$$y - y_0 = m(x - x_0)$$
$$y - n = \frac{-4}{7}(x+1)$$
$$y - n = \frac{-4}{7}x - \frac{4}{7}$$
$$-\frac{4}{7}x - \frac{4}{7} + 3 - 4 = 0$$
$$-\frac{4}{7}x + \frac{17}{7} - y = 0$$

⑥

$2y = 4x + 1$

$y = \frac{4x}{2} + \frac{1}{2}$

$y = 2x + \frac{1}{2}$

$m = 2$

⑦

$tg\theta = \frac{m_2 - m_1}{1 + m_2 \cdot m_1} = \frac{2+1}{1+2\cdot(-1)} = \frac{3}{-1} = 3$,,

⑧

$tg\theta = \frac{1}{m} = \frac{1}{2} = 0,5$,,

⑨

$d(P,r) = \frac{|Ax_0 + my_0 + C|}{\sqrt{A^2 + m^2}}$

$= \frac{|(-3)\cdot 6 + (-1)\cdot 4 - 2|}{\sqrt{(-3)^2 + (-1)^2}}$

$= \frac{|-18 - 4 - 2|}{\sqrt{10}}$

$d(P,r) = \frac{24}{\sqrt{16}}$,,

⑩ $4x - y - 1 - 16 = 0 \Rightarrow 4x - 16 = y + 1 \Rightarrow 4(x-4) = 1(y+1) \Rightarrow$

$\frac{x-4}{1} = \frac{y+1}{4} \Rightarrow$

$x - 4 = t$

$y + 1 = 4t$

$\begin{cases} x = t + 4 \\ y = 4t - 1 \end{cases}$,,

(11) $\begin{cases} x = -2 + t \\ y = 2 - \frac{t}{2} \end{cases}$ $y = \frac{2 - t}{2}$

$y = \frac{2 - x + 2}{2} = 4 - \frac{x + 2}{2}$

$2y = 4 - x + 2$

$-x - 2y + 6 = 0$

$x + 2y - 6 = 0$ //

(12)

$(x-a)^2 + (y-b)^2 = 3^2$

$(x-1)^2 + (y+1)^2 = 9$

$x^2 + y^2 - 2xa - 2yb + a^2 + b^2 - r^2 = 0$

$x^2 + y^2 - 2x1 - 2y(-1) + 1^2 + (-1)^2 - 3^2 = 0$

$x^2 + y^2 - 2x + 2y - 1 = 0$ //