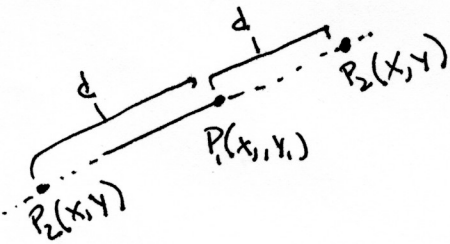Consider a line w/ eqn $y = mx + b$. Where is (x, y) such that the distance between $P_1(x_1, y_1)$ & $P_2(x_2, y)$ is d?

$$d^2 = (x - x_1)^2 + (y - y_1)^2$$

Substitute $y = mx + b$:

$$d^2 = (x - x_1)^2 + ((mx + b) - y_1)^2$$

$$= x^2 - 2xx_1 + x_1^2 + (mx + b)^2 - 2y_1(mx + b) + y_1^2$$

$$= x^2 - 2xx_1 + x_1^2 + m^2x^2 + 2mbx + b^2 - 2y_1 mx - 2y_1 b + y_1^2$$

Collect terms & rearrange:

$$x^2(1 + m^2) + x(2mb - 2y_1 m - 2x_1) + (x_1^2 + b^2 - 2y_1 b + y_1^2 - d^2) = 0$$
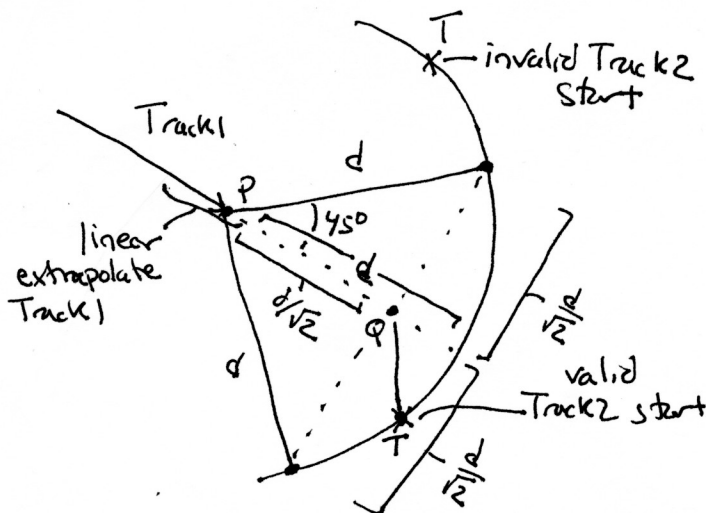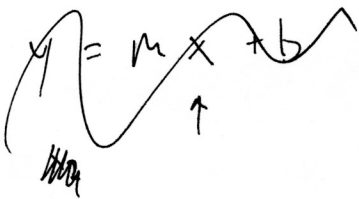
Quadratic formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$a = 1 + m^2$$

$$b = 2(mb - y_1 m - x_1)$$

$$c = x_1^2 + b^2 - 2y_1 b + y_1^2 - d^2$$

Track2 candidates already filtered for being within reasonable distance & orientation

if Track2 start is within 45° of Track1, then
$$\overline{QT} \leq \frac{d}{\sqrt{2}}$$