

Ex. 5

$$x^2 + 2x + y^2 - 4y + 4 = 0$$

$$(x^2 + 2x + 1^2) - 1 + (y^2 - 4y + 2^2) - 4 + 4 = 0$$

$$\underline{(x+1)^2 + (y-2)^2 = 1}$$

$$\Rightarrow S(-1, 2), T(0, 2)$$

$$\vec{ST} \cdot \vec{MT} = 0$$

$$\vec{ST} = T - S = (+1, 0), \vec{MT} = T - M = (x - 0, y - 2)$$

$$\Rightarrow 1 \cdot (x - 0) + 0 \cdot (y - 2) = 0$$

$$\underline{x = 0}$$