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Mechatronics toolevel Engineering

19/ENG05/060   MR olsunlola

(1) $x^2 + y^2 - 5x - y + 4 = 0$

$x^2 + y^2 + 2gx + 2hx + 4 = 0$

$x x_1 + y y_1 + g(x + x_1) + h(y + y_1) + c$

$c = 4$

$g = -5/2$

$h = -1/2$

$x_1 = 1$

$y_1 = 0$

$x + 0 - \frac{5}{2}(x + 1) - \frac{1}{2}(y + 0) + 4 = 0$

$x - \frac{5}{2}x - \frac{5}{2} - \frac{1}{2}y + 4 = 0$

$2x - 5x - 5 - y + 8 > 0$

$-2x + 3 - y = 0$

$y = -3x + 3$

(2) $x^2 + y^2 - 12x - 12y + 47 = 0$

$x^2 + y^2 + 2ghx - 2hx + c > 0$

$c = 47$ $y_1 = 0$

$g = -6$

$h = -6$

$x_1 = 1$

$x x_1 + y y_1 - 6(x + x_1) - 6(y - y_1) + 6 \cdot 0$

$x + 0 - 6(x + 1) - 6(y + 0) + 6 = 0$

$x - 6x - 6 - 6y + 47 = 0$

$-5x - 6y + 41 = 0$

$6y = -5x + 41$

$y = -5x/6 + \frac{41}{6}$

(3) $x^2 + y^2 - 8x + 14y + 40 = 0$

$c = 40$

$g = -4$

$h = 7$

$x_1 = 1$

$y_1 = 0$

$x x_1 + y y_1 - 4(x + x_1) + 7(y + y_1) + 40 = 0$

$x - 4(x + 1) + 7y + 40 = 0$

$x - 4x - 4 + 7y + 40 = 0$

$-3x + 7y + 36 = 0$

$7y = 3x - 36$

$y = 3x/7 - 36/7$