

UNIVERSIDAD DE SAN CARLOS DE GUATEMALA
FACULTAD DE CIENCIAS ECONOMICAS
CURSO: MATEMÁTICAS APLICADAS I
AÑO 2009

LABORATORIO No. 3

De lo que se da a continuación identifique a que ecuación corresponde y opere.

$$x^2 + y^2 - 4x - 6y + 19 = 0$$

$$2x^2 + 2y^2 + 16x - 4y + 17 = 0$$

$$x^2 + y^2 - 10x + 4y + 29 = 0$$

$$6x^2 + 4y^2 - 36x + 16y + 70 = 0$$

$$9x^2 + 2y^2 + 4y + 20 = 0$$

$$2x^2 + y^2 - 16x - 12y + 80 = 0$$

$$y^2 - 8y + 17 = 0$$

$$x^2 - 4x + y + 14 = 0$$

$$x^2 - 7x + 12 = 0$$

$$y^2 - 10y + 25 = 0$$

$$y^2 - 2y - 6x + 19 = 0$$

$$6x^2 - 12x - 4y^2 - 16y - 34 = 0$$

$$2y^2 - 12y - x^2 + 6x + 7 = 0$$

$$5x^2 + 20x - 3y^2 - 24y - 28 = 0$$

FECHA ENTREGA: 10 MARZO

LOS CASOS DE DERIVADAS ENTREGA 20 DE MARZO

$$x^2 + y^2 - 4x - 6y + 19 = 0$$

$$(x^2 - 4x + 4) + (y^2 - 6y + 9) = -19 + 4 + 9$$

$$(x-2)^2 + (y-3)^2 = -6$$

$r^2 < 0 =$ No hay lugar geométrico.

$$2x^2 + 2y^2 + 16x - 4y + 17 = 0$$

$$2x^2 + 16x + 2y^2 - 4y = -17$$

$$2(x^2 + 8x + 16) + 2(y^2 - 2y + 1) = -17 + 32 + 2$$

$$2(x+4)^2 + 2(y-1)^2 = 17$$

$$\frac{2(x+4)^2}{2} + \frac{2(y-1)^2}{2} = \frac{17}{2}$$

$$(x+4)^2 + (y-1)^2 = 8.5$$

$$H, K = (-4, 1)$$

$$r^2 = 8.5$$

$$r = 2.92$$



$$x^2 + y^2 - 10x + 4y + 29 = 0$$

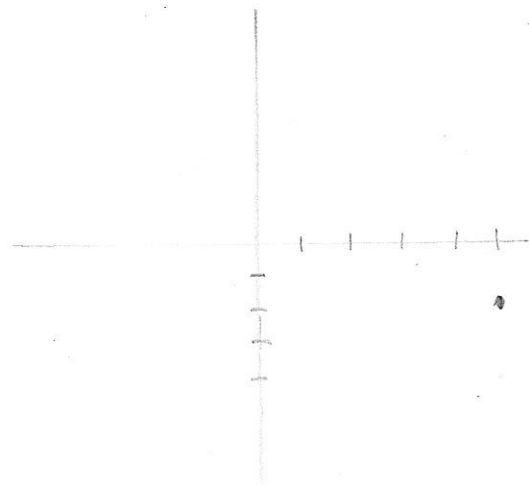
$$x^2 - 10x + y^2 + 4y = -29$$

$$(x^2 - 10x + 25) + (y^2 + 4y + 4) = -29 + 25 + 4$$

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

$$H, K = (5, -2)$$

$r = 0$, un punto.



$$6x^2 + 4y^2 - 36x + 16y + 70 = 0$$

$$6(x^2 - 6x + 9) + 4(y^2 + 4y + 4) = -70 + 54 + 16$$

$$6(x-3)^2 + 4(y+2)^2 = 0$$

$$\frac{(x-3)^2}{4} + \frac{(y+2)^2}{6} = 0$$

$$H, K = (3, -2)$$

P/ punto ubicado en $(3, -2)$

$$36x + 9x^2 + 2y^2 + 4y + 20 = 0$$

$$9(x^2 + 4x + 4) + 2(y^2 + 2y + 1) = -20 + 36 + 2$$

$$9(x+2)^2 + 2(y+1)^2 = 18$$

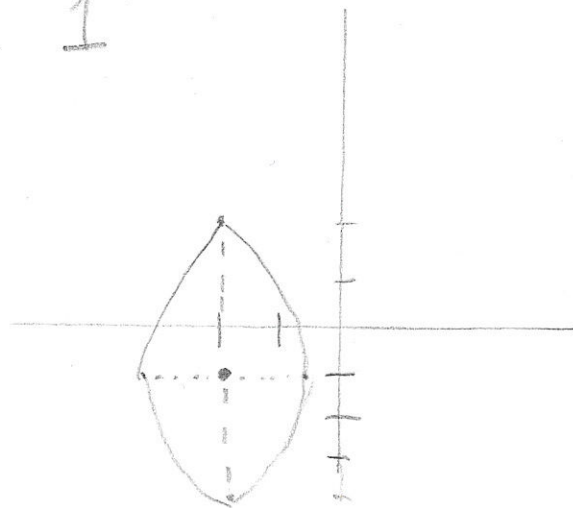
$$\frac{9(x+2)^2}{18} + \frac{2(y+1)^2}{18} = \frac{18}{18}$$

$$\frac{(x+2)^2}{2} + \frac{(y+1)^2}{9} = 1$$

$$H, K = (-2, -1)$$

$$a = 1.41$$

$$b = 3$$



$$2x^2 + y^2 - 16x - 12y + 80 = 0$$

$$2(x^2 - 8x + 16) + (y^2 - 12y + 36) = -80 + 32 + 36$$

$$\frac{2(x-4)^2}{12} + \frac{(y-6)^2}{12} = \frac{-12}{12}$$

$$\frac{(x-4)^2}{6} + \frac{(y-6)^2}{12} = -1$$

No hay lugar geométrico.

$$y^2 - 8y + 17 = 0$$

$$(y^2 - 8y + 16) = -17 + 16$$

$$(y - 4)^2 = -1$$

no hay lugar geométrico

$$x^2 - 4x + y + 14 = 0$$

$$x^2 - 4x + 4 = -y - 14 + 4$$

$$(x - 2)^2 = -y - 10$$

$$(x - 2)^2 = -(y + 10)$$

$$H.K = (2, -10)$$

$$4p = -1$$

$$p = -\frac{1}{4}$$

$$p = -0.25$$

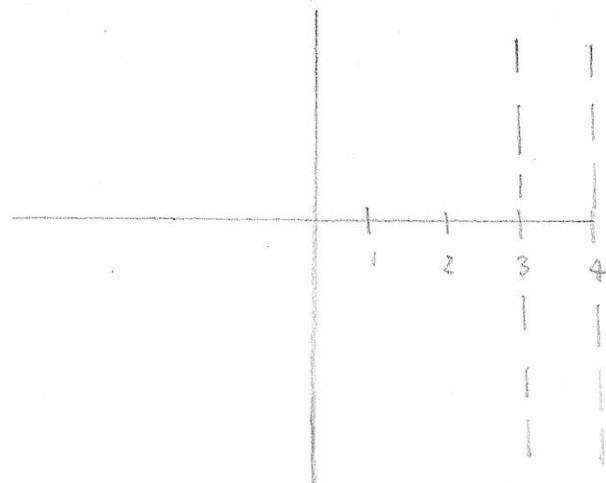
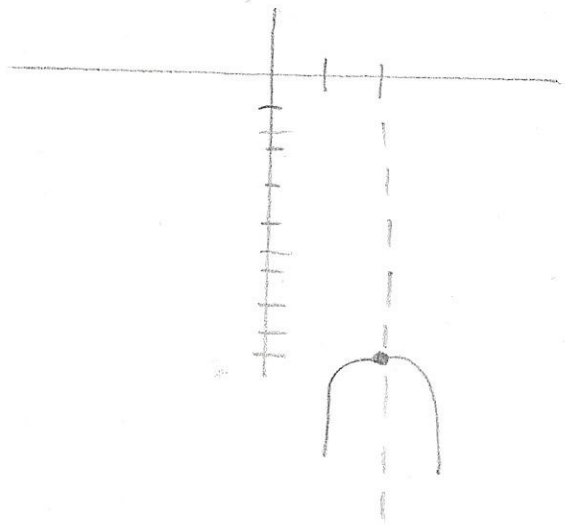
$$x^2 - 7x + 12 = 0$$

$$(x - 4)(x - 3) = 0$$

$$x = 4$$

$$x = 3$$

R/ rectas paralelas



$$y^2 - 10y + 25 = 0$$

$$(y-5)^2 = 0$$

$$y = 5$$

∴ rectas coincidentes

$$y^2 - 2y - 6x + 19 = 0$$

$$(y^2 - 2y + 1) = 6x - 19 + 1$$

$$(y-1)^2 = 6x - 18$$

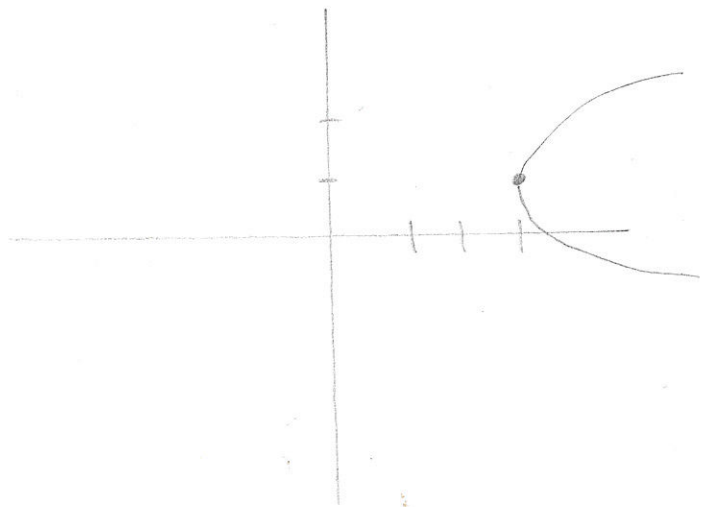
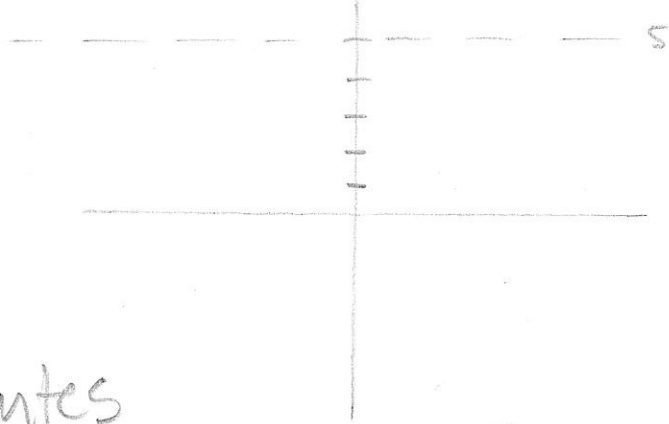
$$(y-1)^2 = 6(x-3)$$

$$H, K = (3, 1)$$

$$4p = 6$$

$$p = \frac{6}{4}$$

$$p = 1.5$$



$$6x^2 - 12x - 4y^2 - 16y - 34 = 0$$

$$6(x^2 - 2x + 1) - 4(y^2 + 4y + 4) = 34 + 6 - 16$$

$$6(x-1)^2 - 4(y+2)^2 = 24$$

$$\frac{6(x-1)^2}{24} - \frac{4(y+2)^2}{24} = \frac{24}{24}$$

$$\frac{(x-1)^2}{4} - \frac{(y+2)^2}{6} = 1$$

$$H, K = (1, -2)$$

Asimdotas:

$$\frac{x-1}{2} = \frac{y+2}{2.45}$$

$$\frac{x-1}{2} = -\frac{y+2}{2.45}$$

$$2.45(x-1) = 2(y+2)$$

$$2.45x - 2.45 = 2y + 4$$

$$2.45x - 2y - 2.45 - 4 = 0$$

$$2.45x - 2y - 6.45 = 0$$

$$x = 2.63$$

$$y = -3.22$$

$$2.45(x-1) = -2(y+2)$$

$$2.45x - 2.45 = -2y - 4$$

$$2.45x + 2y - 2.45 + 4 = 0$$

$$2.45x + 2y + 1.55 = 0$$

$$x = -0.63$$

$$y = -0.77$$

$$2y^2 - 12y - x^2 + 6x + 7 = 0$$

$$2(y^2 - 6y + 9) - (x^2 - 6x + 9) = -7 + 18 - 9$$

$$2(y-3)^2 - (x-3)^2 = 2$$

$$\frac{2(y-3)^2}{2} - \frac{(x-3)^2}{2} = \frac{2}{2}$$

$$\frac{(y-3)^2}{1} - \frac{(x-3)^2}{2} = 1$$

$$H, K = (3, 3)$$

Asintotas

$$\frac{y-3}{1} = \frac{x-3}{1.41}$$

$$\frac{x-3}{1} = -\frac{y-3}{1.41}$$

$$1.41(y-3) = x-3$$

$$1.41y - 4.23 = x-3$$

$$-x + 1.41y - 4.23 + 3 = 0$$

$$-x + 1.41y - 1.23 = 0$$

$$x = -1.23$$

$$y = 0.87$$

$$1.41(x-3) = -y+3$$

$$1.41x - 4.23 = -y+3$$

$$x + 1.41y - 4.23 - 3 = 0$$

$$x + 1.41y - 7.23 = 0$$

$$x = 7.23$$

$$y = 5.13$$

$$5x^2 + 20x - 3y^2 - 24y - 28 = 0$$

$$5(x^2 + 4x + 4) - 3(y^2 + 8y + 16) = 28 + 20 - 48$$

$$5(x+2)^2 - 3(y+4)^2 = 0$$

$$\frac{(x+2)^2}{3} - \frac{(y+4)^2}{5} = 0$$

$$H, K = (-2, -4)$$

Asindotas

$$\frac{x+2}{1.73} = \frac{y+4}{2.24}$$

$$\frac{x+2}{1.73} = -\frac{y+4}{2.24}$$

$$2.24(x+2) = 1.73(y+4)$$

$$2.24(x+2) = -1.73(y+4)$$

$$2.24x + 4.48 = 1.73y + 6.92$$

$$2.24x + 4.48 = -1.73y - 6.92$$

$$2.24x - 1.73y + 4.48 - 6.92 = 0$$

$$2.24x + 1.73y + 4.48 + 6.92 = 0$$

$$2.24x - 1.73y - 2.44 = 0$$

$$2.24x + 1.73y + 11.4 = 0$$

$$x = 1.09$$

$$x = -5.09$$

$$y = -1.41$$

$$y = -6.59$$