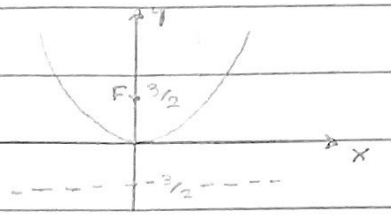
calculo 2, stewart vol 2, ed 8, cap 10.5

1 $x^2 = 6y$ $\quad 6 = 2p \quad p = 3$

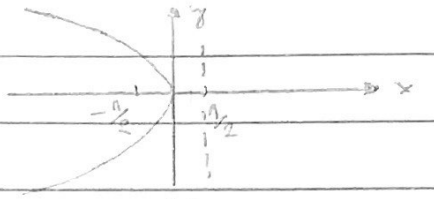
$V(0,0) \quad F(0, 3/2) \quad D \Rightarrow y = -3/2$



3 $2x = -y^2 \quad -2 = 2p \quad p = -1$

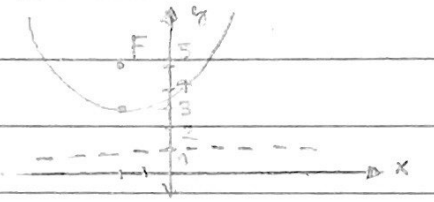
$y^2 = -2x \quad F(-1/2, 0) \quad D \Rightarrow x = 1/2$

$V(0,0)$



5 $(x+2)^2 = 8(y-3) \quad 8 = 2p \quad p = 4$

$V(-2, 3) \quad F(-2, 5) \quad D \Rightarrow y = 1$



7 $y^2 + 6y + 2x + 1 = 0$

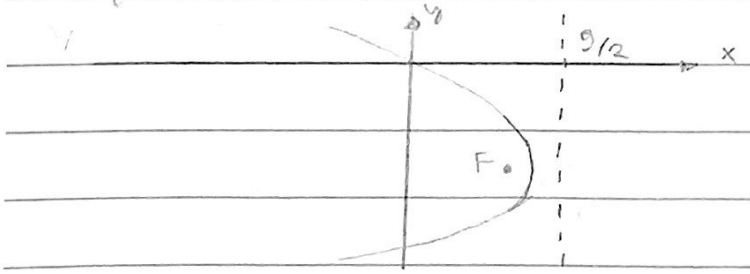
$y^2 + 6y + 9 - 9 + 2x + 1 = 0$

$(y+3)^2 = -2x + 8 = -2(x-4)$

$V(4, -3) \quad p = -1$

$F(4 - 1/2, 3)$

$D \Rightarrow x = 4 + 1/2 = 9/2$



9 $V(0,0) \quad F(-1/2, 0) \quad D \Rightarrow x = 1/2$

$y^2 = 2px \quad 1 = 2p \cdot -1 \quad p = -1/2$

$y^2 = -x$

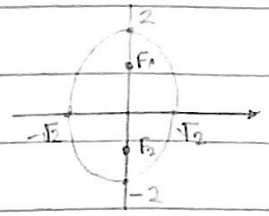
10 $V(2, -2) \quad F(2, -3/2) \quad D \Rightarrow y = -5/2$

$(x-2)^2 = (y+2) \cdot 4p \rightarrow (4-2)^2 = (0+2) \cdot 4p$

$(x-2)^2 = (y+2) \cdot 2 \quad 4 = 4 \cdot 4 \cdot p \quad p = 1/2$

11 $\frac{x^2}{2} + \frac{y^2}{4} = 1 \quad a = 2 \quad a^2 = b^2 + c^2 \quad c = \sqrt{2}$

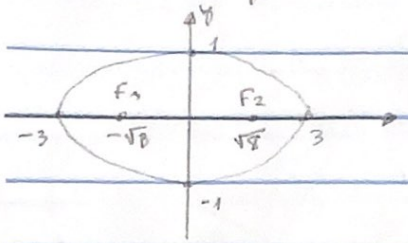
$b = \sqrt{2} \quad 4 = 2 + c^2$



$F_1(0, \sqrt{2})$ $\quad$ excentricidade $= \frac{\sqrt{2}}{2}$

$F_2(0, -\sqrt{2})$

13 $x^2 + 9y^2 = 9 \rightarrow \frac{x^2}{9} + \frac{y^2}{1} = 1$ $\quad a = 3$ $\quad b = 1$ $\quad c = \sqrt{8} = 2\sqrt{2}$



$a^2 = b^2 + c^2 \rightarrow 9 = 1 + 8$

excentricidade $= \frac{\sqrt{8}}{3}$

15 $9x^2 - 18x + 4y^2 - 27 = 0$

$9(x^2 - 2x) + 4y^2 = 27$

$9(x^2 - 2x + 1 - 1) + 4y^2 = 27$

$9((x-1)^2 - 1) + 4y^2 = 27$

$9(x-1)^2 + 4y^2 = 27 + 9 = 36$

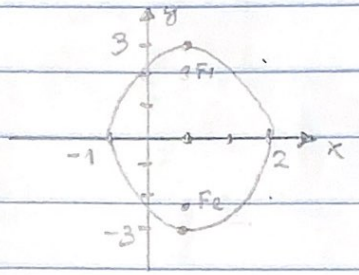
$\frac{9(x-1)^2}{36} + \frac{4y^2}{36} = 1$

$\frac{(x-1)^2}{4} + \frac{y^2}{9} = 1$

$a = 3 \quad b = 2 \quad c(1, 0)$

$9 = 4 + c^2 \quad c = \sqrt{5}$

excentricidade $= \frac{\sqrt{5}}{3}$



17 $\frac{x^2}{b^2} + \frac{y^2}{a^2} = 1 \rightarrow \frac{x^2}{4} + \frac{y^2}{9} = 1$ $\quad c = \sqrt{5}$

foco $= (0, \pm\sqrt{5})$

21 $4x^2 - y^2 - 24x - 4y + 28 = 0$

$4(x^2 - 6x + 9 - 9) + (-1)(y^2 + 4y + 4 - 4) + 28 = 0$

$4((x-3)^2 - 9) + (-1)((y+2)^2 - 4) = -28$

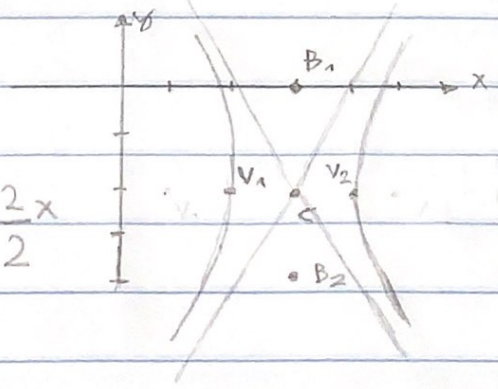
$4(x-3)^2 - 36 + (-1)(y+2)^2 + 4 = -28$

$4(x-3)^2 + (-1)(y+2)^2 = 4 \rightarrow \frac{(x-3)^2}{1} - \frac{(y+2)^2}{4} = 1$

$a = 1 \quad b = 2 \quad c = \sqrt{5}$

$c(3, -2)$

assintotas $\Rightarrow y = \frac{-2}{1}x \quad y = \frac{2}{2}x$



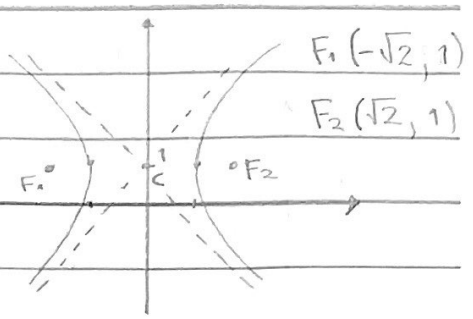
23 $x^2 - y^2 + 2y = 2$

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

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

$C(0,1)$

$a = 1 \quad b = 1 \quad c = \sqrt{2}$



asintotas $y = -x + 1 \quad y = x + 1$

25 $4x^2 = y^2 + 4 \rightarrow 4x^2 - y^2 = 4 \rightarrow x^2 - \frac{y^2}{4} = 1$

hipérbole → $a = 1 \quad b = 2 \quad c = \sqrt{5}$

$C(0,0) \quad V_1(1,0) \quad V_2(-1,0) \quad F_1(\sqrt{5},0) \quad F_2(-\sqrt{5},0)$

27 $x^2 = 4y - 2y^2 \rightarrow x^2 + 2y^2 - 4y = 0 \rightarrow x^2 + 2(y^2 - 2y) = 0$

$x^2 + 2((x-1)^2 - 1) = 0 \rightarrow x^2 + 2(x-1)^2 = 2 \rightarrow \frac{x^2}{2} + (y-1)^2 = 1$

$a = \sqrt{2} \quad b = 1 \quad 2 = 1 + c^2 \quad c = 1$

$C(0,1) \quad F_1(1,1) \quad A_1(-\sqrt{2},1) \quad B_1(0,2)$ elipse

$F_2(-1,1) \quad A_2(\sqrt{2},1) \quad B_2(0,0)$

29 $3x^2 - 6x - 2y = 1 \rightarrow 3(x^2 - 2x + 1 - 1) - 2y = 1$

$3((x-1)^2 - 1) - 2y = 1 \rightarrow 3(x-1)^2 - 3 = 2y + 1$

$3(x-1)^2 = 2y + 4 \rightarrow 3(x-1)^2 = 2(y+2)$

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

$V(1,-2) \quad 4p = \frac{2}{3} \quad p = \frac{1}{6}$

$F(1, -2 + \frac{1}{6}) \rightarrow F(1, -\frac{11}{6})$

$D \Rightarrow y = -2 - \frac{1}{6}$

31 $C(0,0) \quad h = 0 \quad k = 0 \quad F(1,0) \rightarrow F(h+p, k)$

$(y)^2 = 4(x)^2 \quad +p = +1$

33 $F(-1,0) \quad D \Rightarrow x = 2 \quad V(-1,0) \quad p = -3$

$(y-0)^2 = 8(x+1)^2$

$(y)^2 = -12(x+1)^2$

35 $V(h,k) \rightarrow V(3,-1) \quad (y+1)^2 = (x-3) \cdot 4p$

$(2+1)^2 = (-15-3) \cdot 4p \quad p = -\frac{1}{8}$

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

37 $F(\pm 2, 0)$ $C = (0, 0)$ $h = 0$ $k = 0$

$\frac{x^2}{25} + \frac{y^2}{21} = 1$ $a = 5$ $c = 2$ $25 = b^2 + 4$

$b = \sqrt{21}$

39 $F_1(0, 2)$ $F_2(0, 6)$ $C(0, 4)$ $V_1(0, 0)$ $V_2(0, 8)$

$\frac{x^2}{12} + \frac{(y-4)^2}{16} = 1$ $a = 4$ $c = 2$ $b = \sqrt{12}$

$16 = b^2 + 4$

41 $C(-1, 4)$ $h = -1$ $k = 4$ $V_1(-1, 0)$ $F_1(-1, 6)$

$\frac{(x+1)^2}{12} + \frac{(y-4)}{16} = 1$ $c = 2$ $a = 4$ $b = \sqrt{12}$

43 $V.(\pm 3, 0)$ $F(\pm 5, 0)$

$\frac{x^2}{9} - \frac{y^2}{16} = 1$ $c = 5$ $a = 3$ $b = 4$

$25 = 9 + b^2$

45 $V_1(-3, -4)$ $F_1(-3, -7)$ $C(-3, 1)$

$V_2(-3, 6)$ $F_2(-3, 9)$ $c = 8$ $a = 5$ $b = \sqrt{39}$

$\frac{(y-1)^2}{25} - \frac{(x+3)^2}{39} = 1$ $64 = 25 + b^2$

47 $V(\pm 3, 0)$ $y = \pm 2x$ $\frac{b}{a} = 2 \rightarrow \frac{b}{3} = 2$ $b = 6$

$\frac{x^2}{9} - \frac{y^2}{36} = 1$ $c^2 = 9 + 36$ $c = \sqrt{45}$