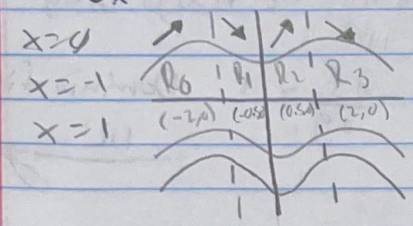
Actividad Semana 3

1.2

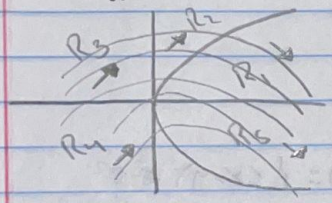
a) $\frac{dy}{dx} = x(1-x^2)$



$x(1-x^2)$

R_0 (-2,0)	+ /
R_1 (-0.5,0)	− \
R_2 (0.5,0)	+ /
R_3 (2,0)	− \

b) $\frac{dy}{dx} = y^2 - x$ $\quad y^2 - x = 0 \quad x = y^2$



$y^2 - x$

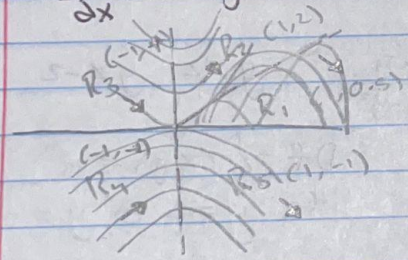
R_1 (4,1.5)	−
R_2 (4,1)	+
R_3 (-1,2)	+
R_4 (-3,-2)	+
R_5 (5,0)	−

c) $\frac{dy}{dx} = x(y-x)$

$x(y-x) = 0$

$x = 0 \quad y = 0$

$y = x$

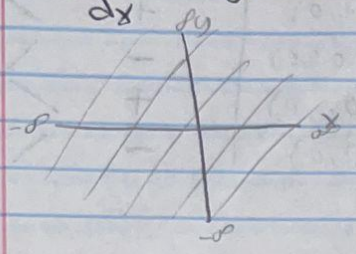


$x(y-x)$

R_1 (1,0.5)	−
R_2 (1,2)	+
R_3 (-1,1)	−
R_4 (-1,-2)	+
R_5 (1,-1)	−

1.3

a) $\frac{dy}{dx} = x + y = \alpha \quad x = -y$



Dominio de $f(x,y) = x + y$

$\mathbb{R}^2$

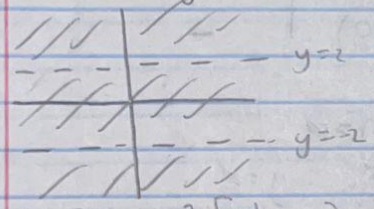
$\frac{\partial f}{\partial y} = 1$ Dominio final $\mathbb{R}^2$

b) $(4-y^2)\,y' = x^2$

$\frac{(4-y^2)}{(4-y^2)}\frac{dy}{dx} = \frac{x^2}{(4-y^2)}$

$\frac{dy}{dx} = \frac{x^2}{(4-y^2)} \qquad y \neq 2 \quad y \neq -2$

$D\,f(x,y) = \{(x,y) \in \mathbb{R}^2$ tq $y \neq 2$ ó $y \neq -2\}$



$\frac{\partial f}{\partial y} = x^2\left[\frac{1}{(4-y^2)}\right] \qquad \frac{2x^2y}{(4-y^2)^2} \qquad y \neq 2 \quad y \neq -2$

$Df = \{(x,y) \in \mathbb{R}^2$ tq $y \neq 2$ ó $y \neq -2\}$

c) $\frac{dy}{dx} = \frac{\sqrt{1-y^2}}{x-1} \qquad y \geq \emptyset \qquad x \neq 1$

$D(x,y) = \{(x,y) \in \mathbb{R}^2$ tq $y \geq \emptyset \; y \; x \neq 1\}$

$\frac{\partial f}{\partial y} = \frac{1}{x-1}\left[\frac{\sqrt{1-y^2}}{1}\right] = \frac{-y}{(x-1)\sqrt{1-y^2}}$

$x \neq 1 \quad y \leq 1$

$Df = \{(x,y) \in \mathbb{R}$ tq $x \neq 1$ y $1 \leq y \leq -1\}$