1) $A = \{1, 3, 4, 5\}$ $B = \{0, 6, 12, 20\}$

$R = \{(x, y) \in A \times B / y = x(x-1)\}$

p/ $x = 1 \to y = 1 \cdot (1-1) \to y = 0$
p/ $x = 3 \to y = 3 \cdot (3-1) \to y = 6$
p/ $x = 4 \to y = 4(4-1) \to y = 12$
p/ $x = 5 \to y = 5(5-1) \to y = 20$

$R = \{(1, 0); (3, 6); (4, 12); (5, 20)\}$
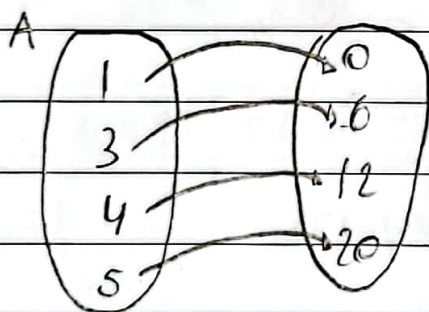
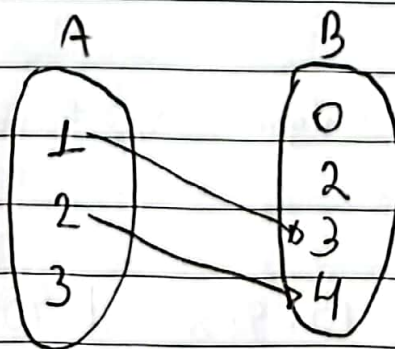2) $A = \{1, 2, 3\}$ $B = \{0, 2, 3, 4\}$

3) $f = \{(x, y) \in A \times B | y = x + 2\}$

p/ $x = 1 \to y = 1 + 2 \to y = 3$
p/ $x = 2 \to y = 2 + 2 \to y = 4$
p/ $x = 3 \to y = 3 + 2 \to x = 5$
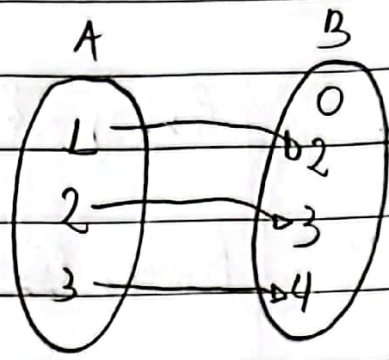
b) $h = \{(x,y) \in A \times B \mid y = x + 1\}$

$p/\ x = 1 \to y = 1 + 1 \Rightarrow y = 2$

$p/\ x = 2 \to y = 2 + 1 \Rightarrow y = 3$

$p/\ x = 3 \to y = 3 + 1 \Rightarrow y = 4$

A   B

3) $\mathbb{R} \times \mathbb{R} \quad (3x + y, 1) = (7; 2x - 3y)$

$3x + y = 7 \quad e \quad 2x - 3y = 1$

$y = 7 - 3x \to 2x - 3(7 - 3x) = 1$

$2x - 3(7 - 3x) = 1$	$3x + y = 7$
$2x - 21 + 9x = 1$	$3 \cdot 2 + y = 7$
$11x - 21 = 1$	$6 + y = 7$
$11x = 22$	$y = 1_{,,}$
$x = \dfrac{22}{11}$	$x = 2$
$x = 2_{,,}$	$y = 1_{,,}$

4) $p: \mathbb{R} \to \mathbb{R}, \quad p(x) = x^2 + 2x - 5$

$\boxed{x = \dfrac{-b \pm \sqrt{\Delta}}{2a}}$

$\boxed{\Delta = b^2 - 4 \cdot a \cdot c}$

$\Delta = 2^2 - 4 \cdot 1 \cdot (-5)$

$\Delta = 2^2 - (-20)$

$\Delta = 4 + 20$

$\Delta = 24_{,,}$

$x = \dfrac{-2 \pm \sqrt{24}}{2 \cdot 1}$

$x' = \dfrac{-2 - \sqrt{6} \cdot \sqrt{4}}{2}$

$x' = \dfrac{-2}{2} - \dfrac{2\sqrt{6}}{2}$

$x' = -1 - \sqrt{6}_{,,}$

$x'' = \dfrac{-2 + \sqrt{6} \cdot \sqrt{4}}{2}$

$x'' = \dfrac{-2}{2} + \dfrac{2\sqrt{6}}{2}$

$x'' = -1 + \sqrt{6}_{,,}$

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5) $f: \mathbb{R}^* \to \mathbb{R}$, $f(x) = 2x - \dfrac{1}{x}$ $\to$ $f(s)$ e $f(x+2)$

$f(s) = 2 \cdot s - \dfrac{1}{5}$	$f(x+2) = 2 \cdot (x+2) - \dfrac{1}{x+2} = \dfrac{2x+4 - 1}{x+2}$
$f(s) = 10 - 5^{-1}$	$f(x+2) \ \dfrac{(2x+4) \cdot (x+2) - 1}{x+2}$
ou $f(s) = 9,8_{11}$	
	$f(x+2) \ \dfrac{(2x^2 + 4x + 4x + 8) - 1}{x+2} = \dfrac{2x^2 + 8x + 7}{x+2}$

6)

a) $f: \mathbb{R}^* \to \mathbb{R}$, $f(x) = 4x$ $\to$ INJETORA

b) $f: \mathbb{R} \to \mathbb{R}_+$, $f(x) = x^2$ $\to$ SOBREJETORA

c) $f: \{0,1,2\} \to \mathbb{N}$, $f(x) = x + 1$ $\to$ INJETORA

d) $f: \mathbb{R} \to \mathbb{R}$, $f(x) = x - 1$ $\to$ BIJETORA