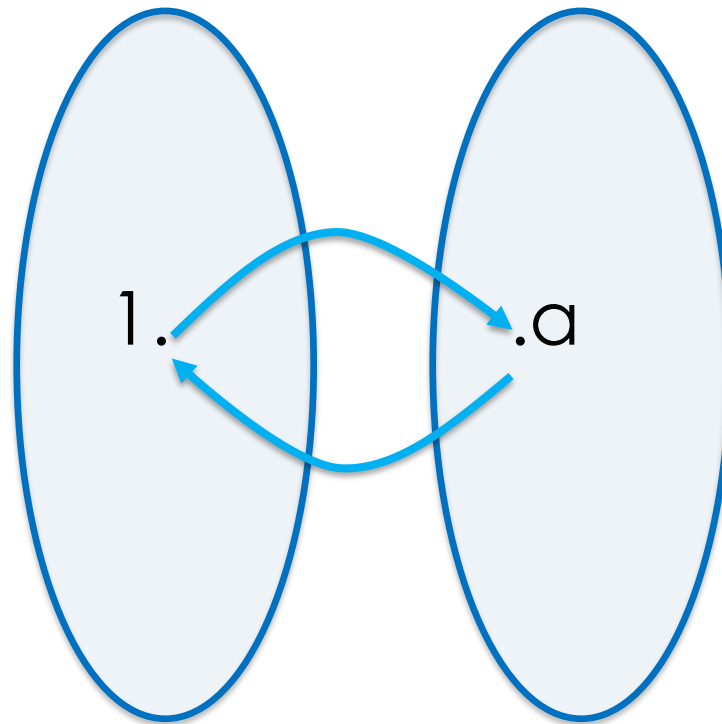


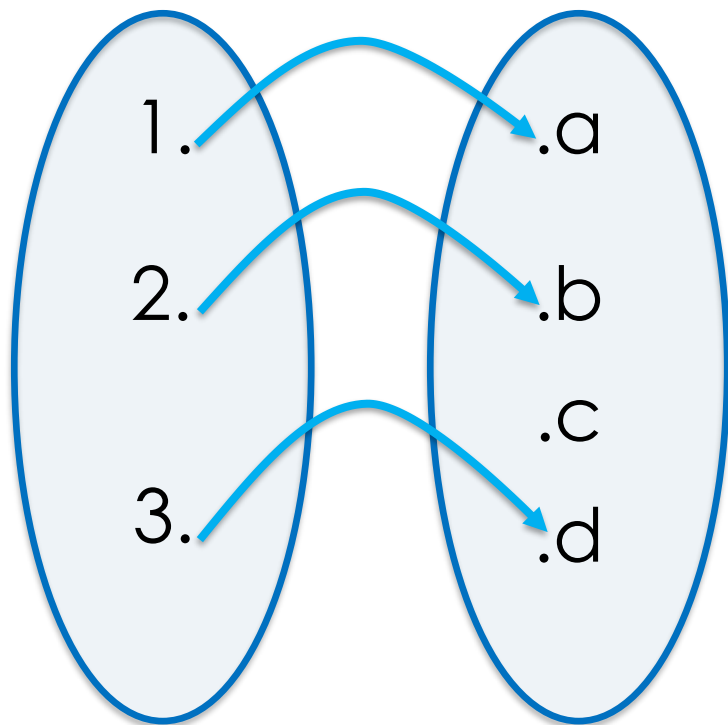
Função Inversa

Prof. Dé
Matemática

Função Inversa



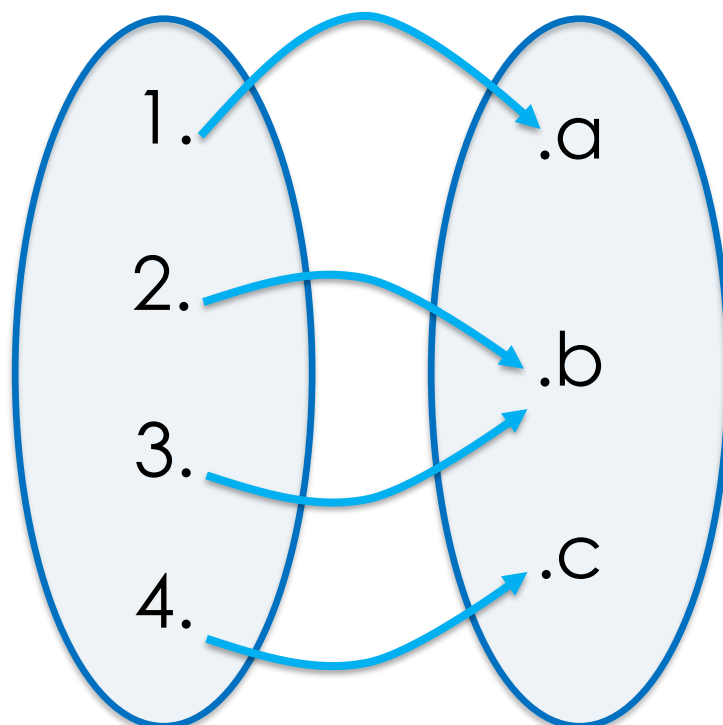
Função Inversa



Injetora ✓

Sobrejetora ✗

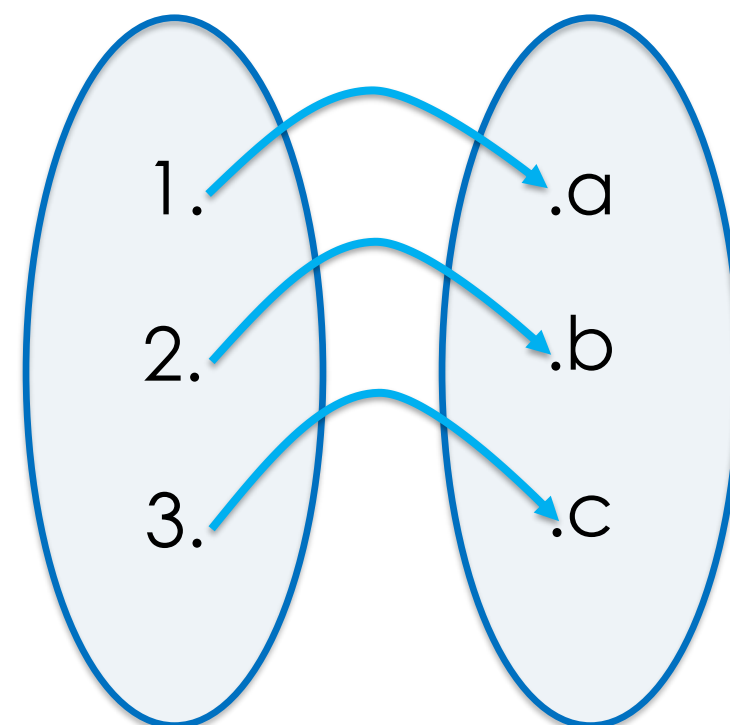
Bijetora ✗



Injetora ✗

Sobrejetora ✓

Bijetora ✗

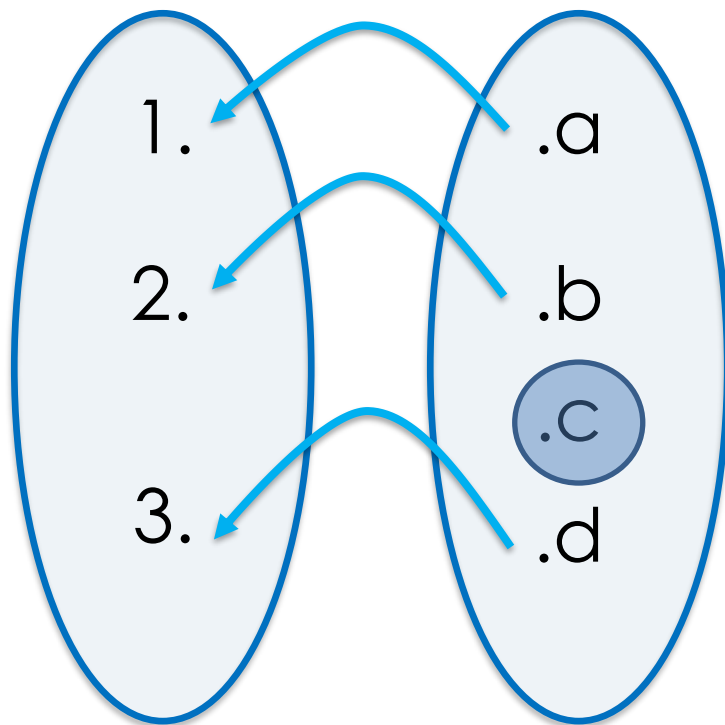


Injetora ✓

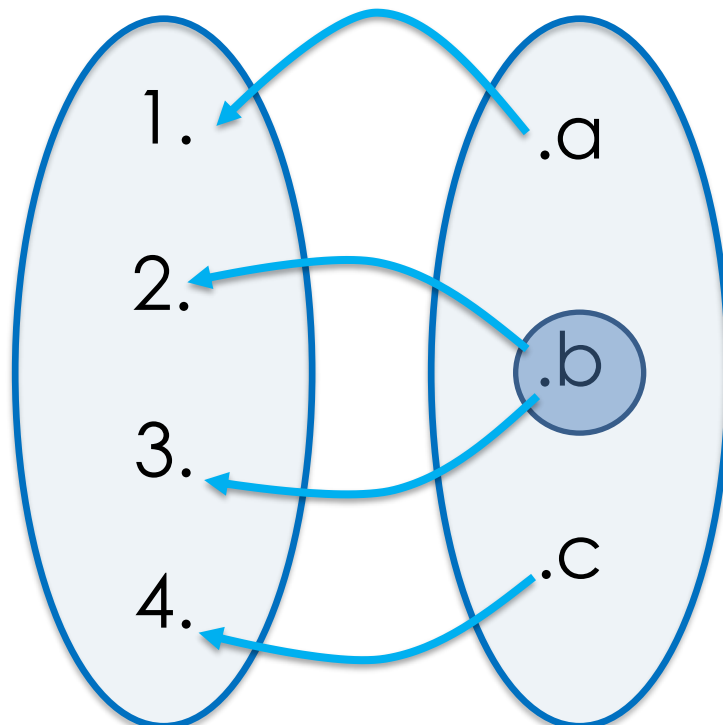
Sobrejetora ✓

Bijetora ✓

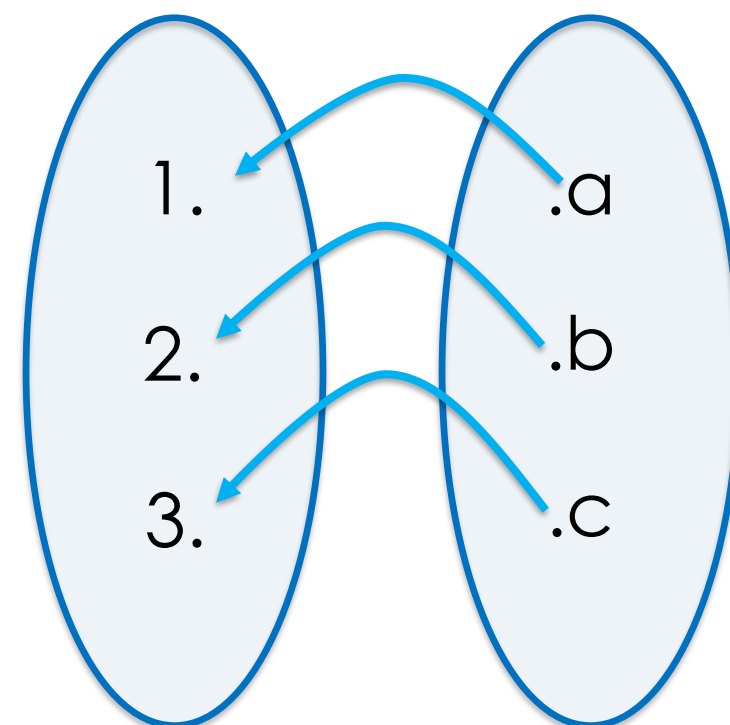
Função Inversa



função ✗



função ✗

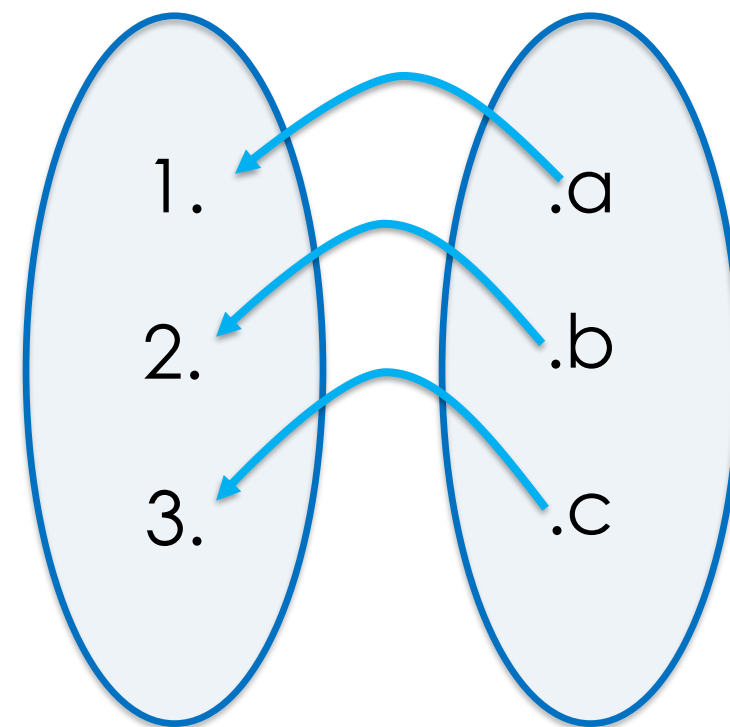


função ✓

Função Inversa

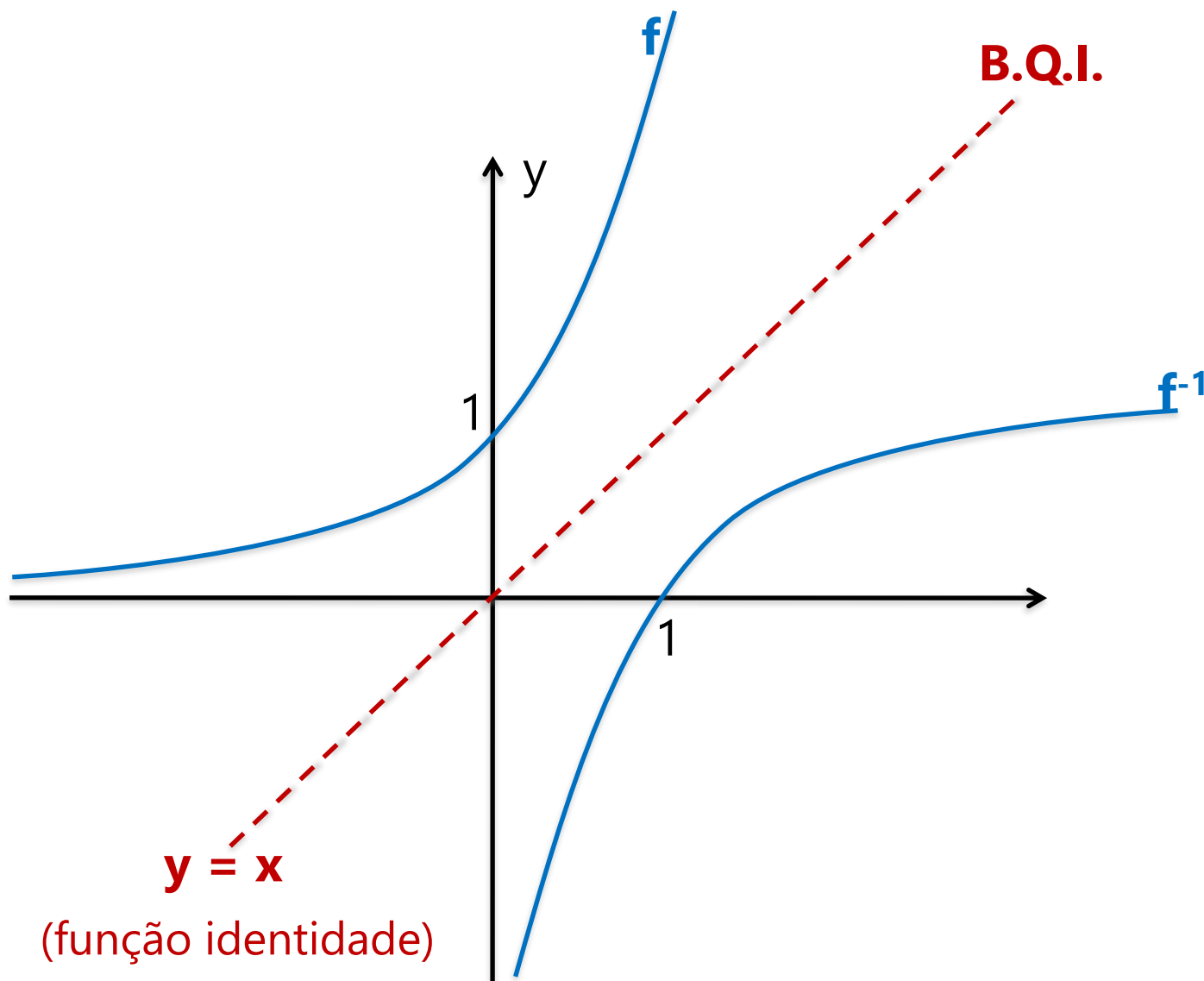
Bijetora ✓

Só existirá inversa da função f
se a função for bijetora.



função ✓

Função Inversa



$$f(f^{-1}(x)) = f^{-1}(f(x)) = x$$

Função Inversa

Determine a função **inversa** de $f(x) = 3x - 4$.

$$y = 3x - 4.$$

$$3y = x + 4$$

$$x = 3y - 4.$$

$$x + 4 = 3y$$

$$y^{-1} = \frac{x+4}{3}$$

Função Inversa

Considere a função $g: \mathbb{R} - \{5\} \rightarrow \mathbb{R}^*$ definida por $g(x) = \frac{12}{x-5}$.

Determine o valor de $g^{-1}(1)$.

$$y = \frac{12}{x-5}$$

$$x = \frac{12}{y-5}$$

$$x(y-5) = 12$$

$$xy - 5x = 12$$

$$xy = 12 + 5x$$

$$y^{-1} = \frac{12+5x}{x}$$

$$g^{-1}(x) = \frac{12+5x}{x}$$

$$g^{-1}(1) = \frac{12+5 \cdot 1}{1}$$

$$g^{-1}(1) = 17$$

Função Inversa

Considere a função $g: \mathbb{R} - \{5\} \rightarrow \mathbb{R}^*$ definida por $g(x) = \frac{12}{x-5}$.

Determine o valor de $g^{-1}(1)$.

$$y = \frac{12}{x-5}$$

$$x - 5 = 12$$

$$x = 17$$

$$(17, 1) \in g(x) \iff (1, 17) \in g^{-1}(x)$$

$$1 = \frac{12}{x-5}$$

Função Inversa

Determine a função inversa de $f(x) = \frac{2x - 5}{3x + 4}$.

$$y = \frac{2x - 5}{3x + 4}$$

$$x = \frac{2y - 5}{3y + 4}$$

$$(3y + 4) \cdot x = 2y - 5$$

$$3yx + 4x = 2y - 5$$

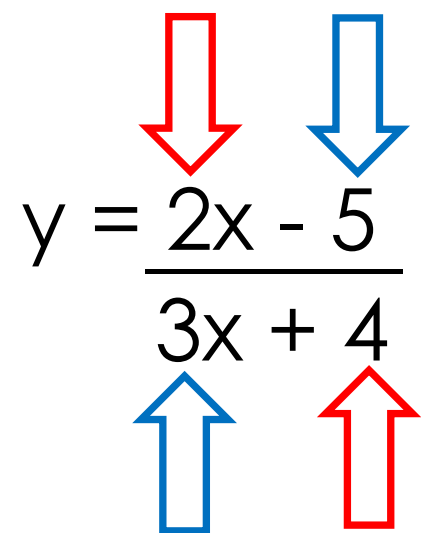
$$3yx - 2y = -4x - 5$$

$$y(3x - 2) = -4x - 5$$

$$y = \frac{-4x - 5}{3x - 2}$$

Função Inversa

Determine a função inversa de $f(x) = \frac{2x - 5}{3x + 4}$.

$$y = \frac{2x - 5}{3x + 4}$$


$$Y^{-1} = \frac{-4x - 5}{3x - 2}$$

Função Inversa

(Espm 2018) Nas alternativas abaixo há 2 pares de funções inversas entre si. Assinale aquela que não pertence a nenhum desses pares:

a) $y = 2x - 1$

b) $y = \frac{1-x}{2}$

c) $y = \frac{x+1}{2}$

d) $y = \frac{x-1}{2}$

e) $y = 1 - 2x$

Função Inversa

(Eear 2017) Sabe-se que a função $f(x) = \frac{x+3}{5}$ é invertível. Assim, $f^{-1}(3)$ é

- a) 3
- b) 4
- c) 6
- d) 12