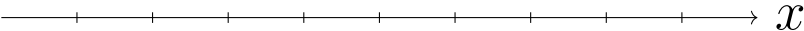


# Notation: Sets

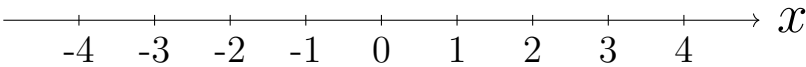
# Notation: Sets

\_\_\_\_\_→  $x$

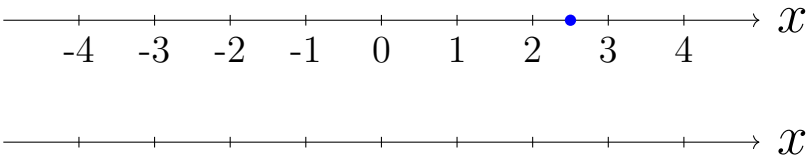
# Notation: Sets



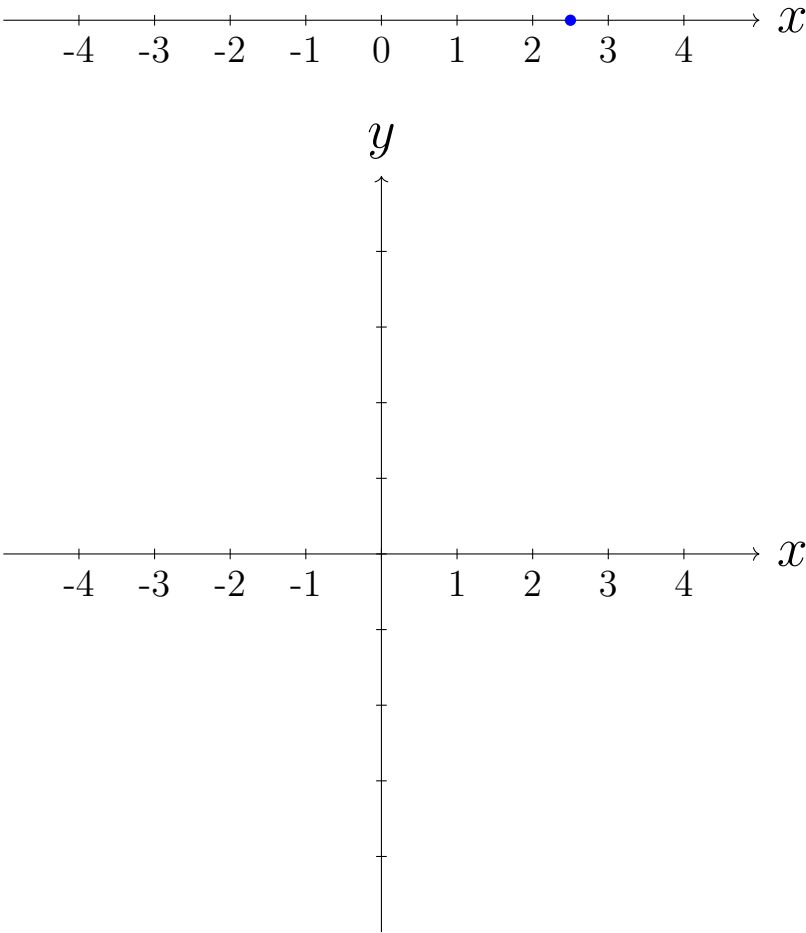
# Notation: Sets



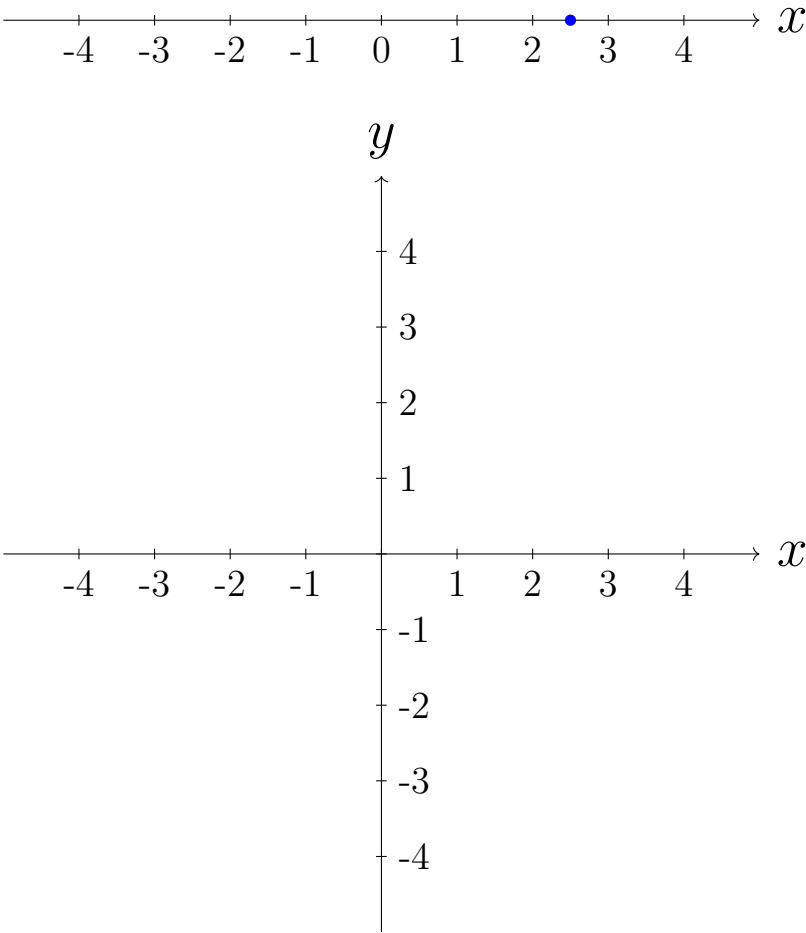
# Notation: Sets



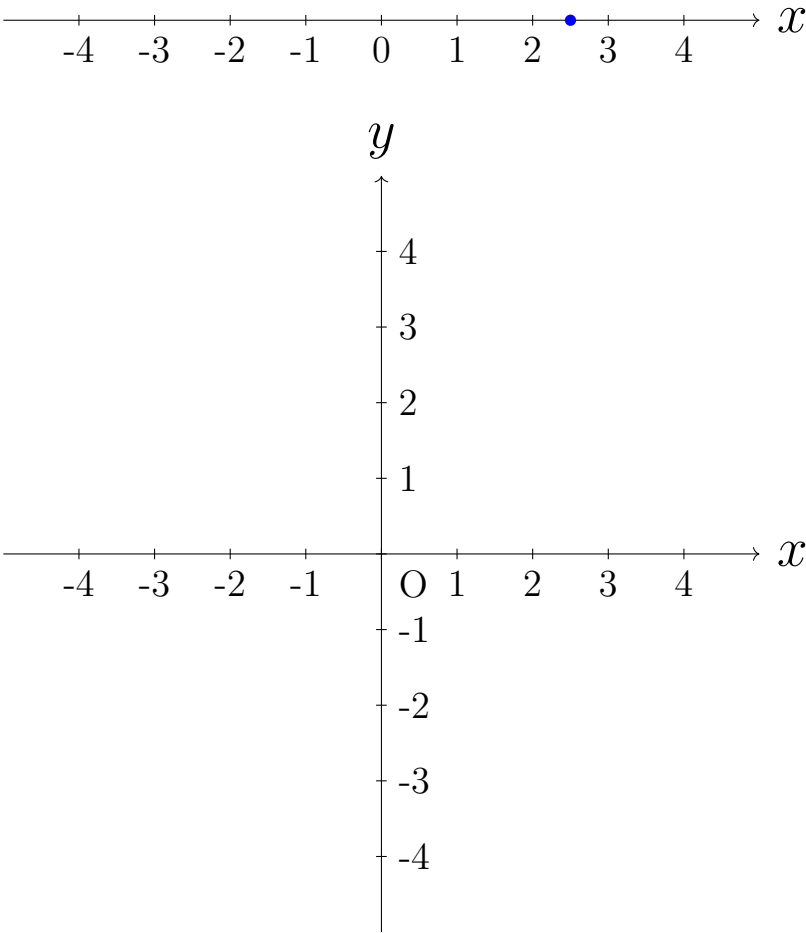
# Notation: Sets



# Notation: Sets



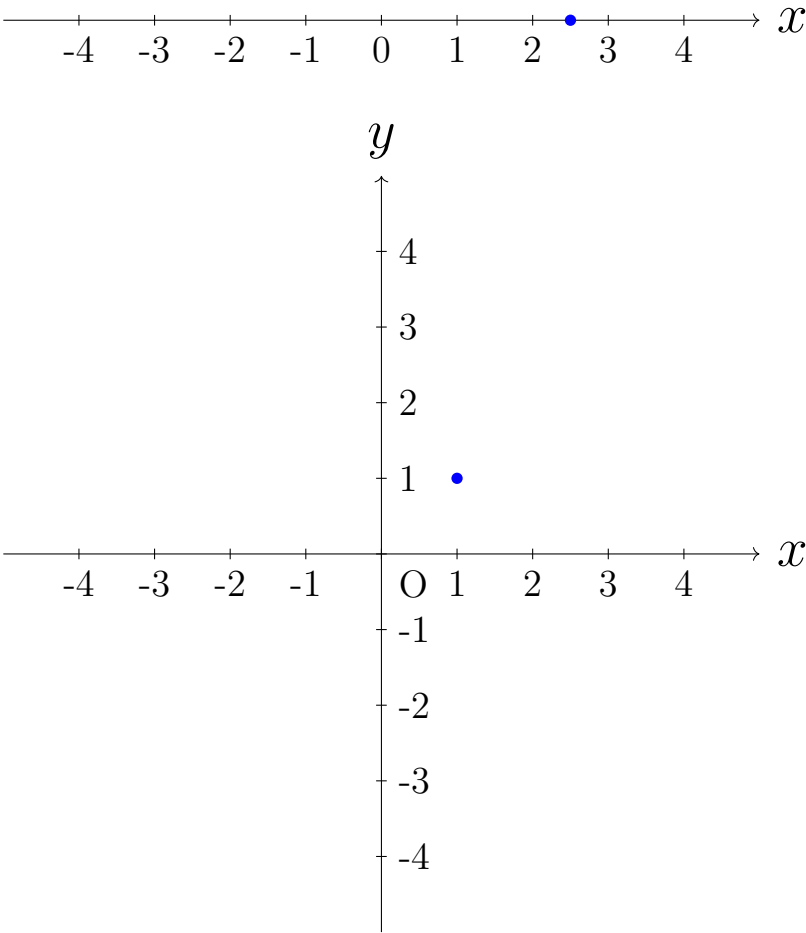
# Notation: Sets





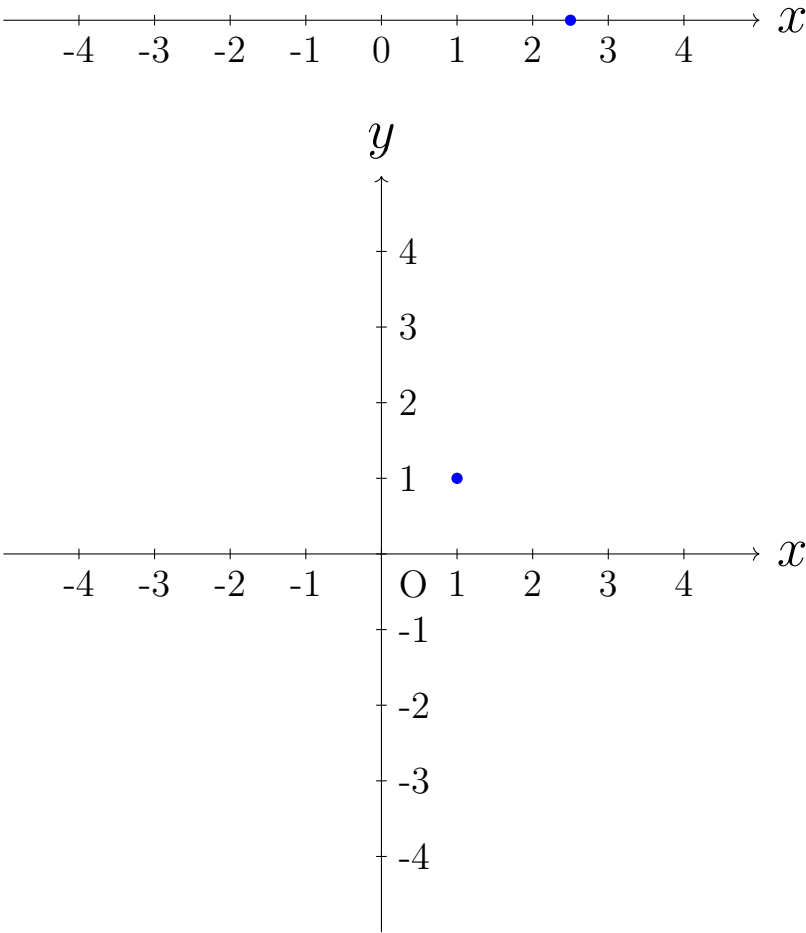
# Notation: Sets

Point:  $(1, 1)$



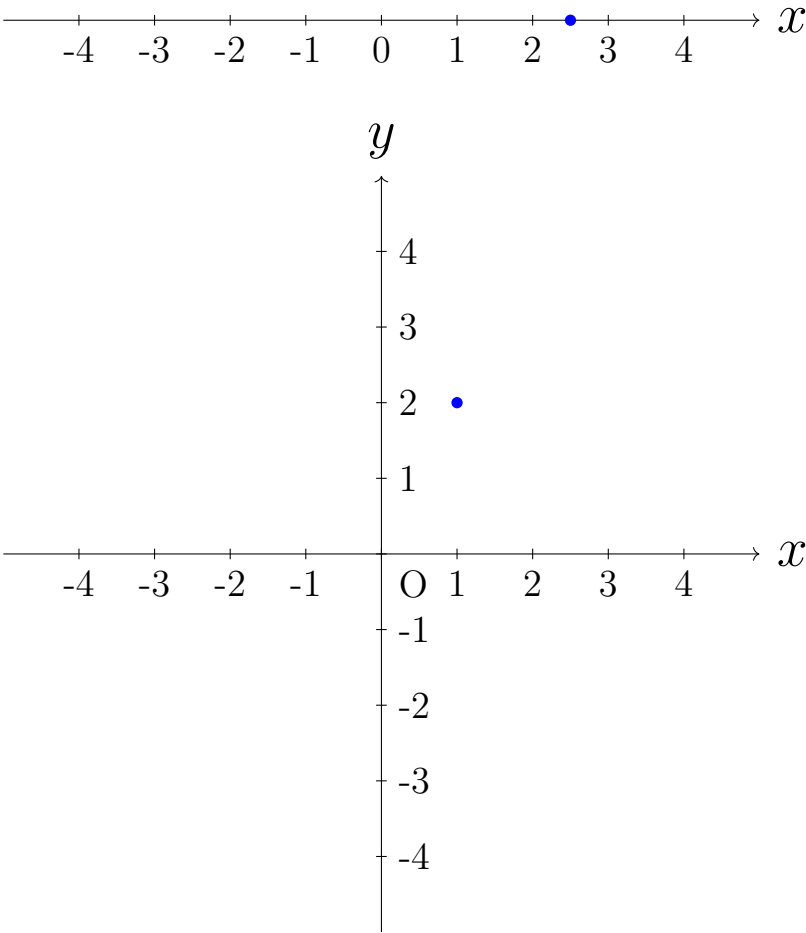
# Notation: Sets

Point:  $(1, 1) \in \mathbb{R}^2$



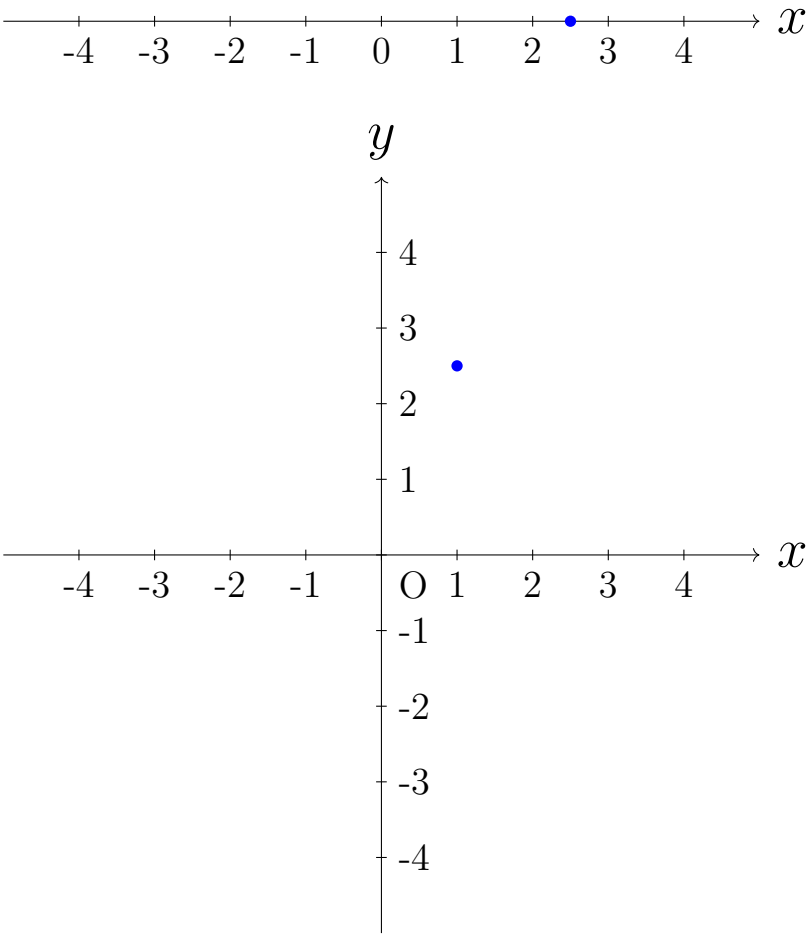
# Notation: Sets

Point:  $(1, 2) \in \mathbb{R}^2$



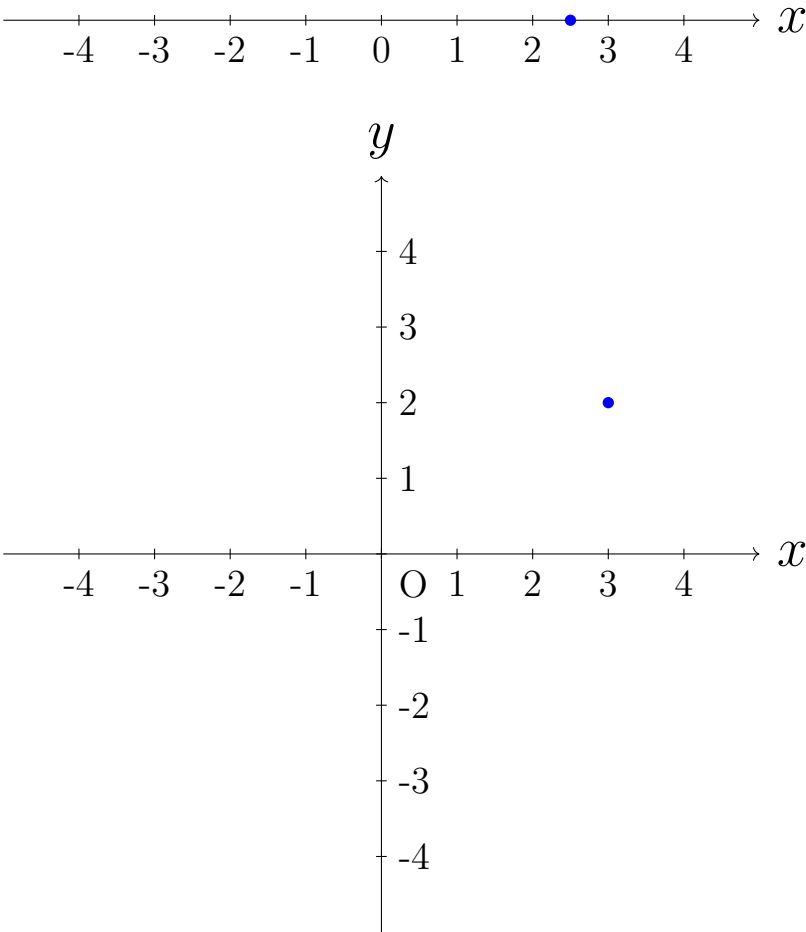
# Notation: Sets

Point:  $(1, 2.5) \in \mathbb{R}^2$

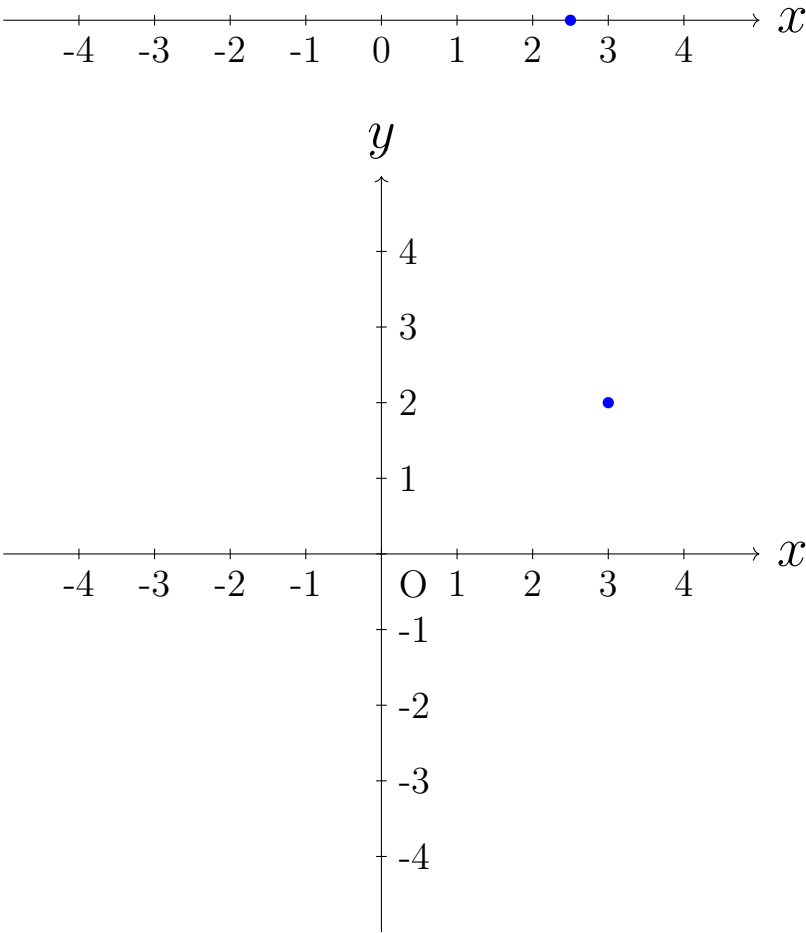


# Notation: Sets

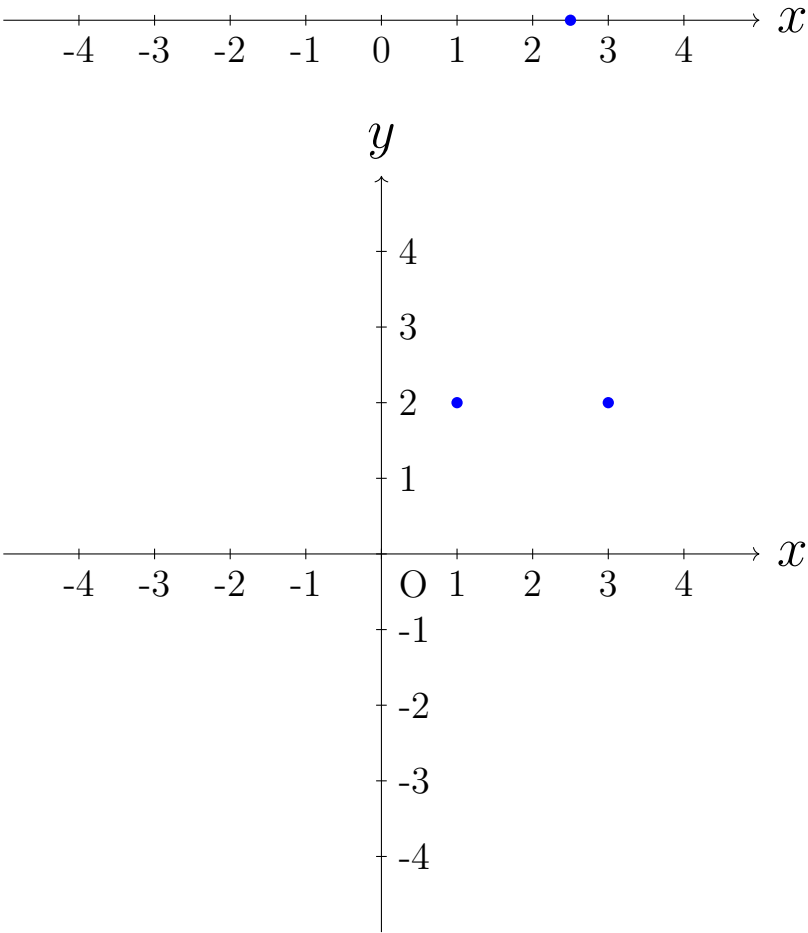
Point:  $(3, 2) \in \mathbb{R}^2$



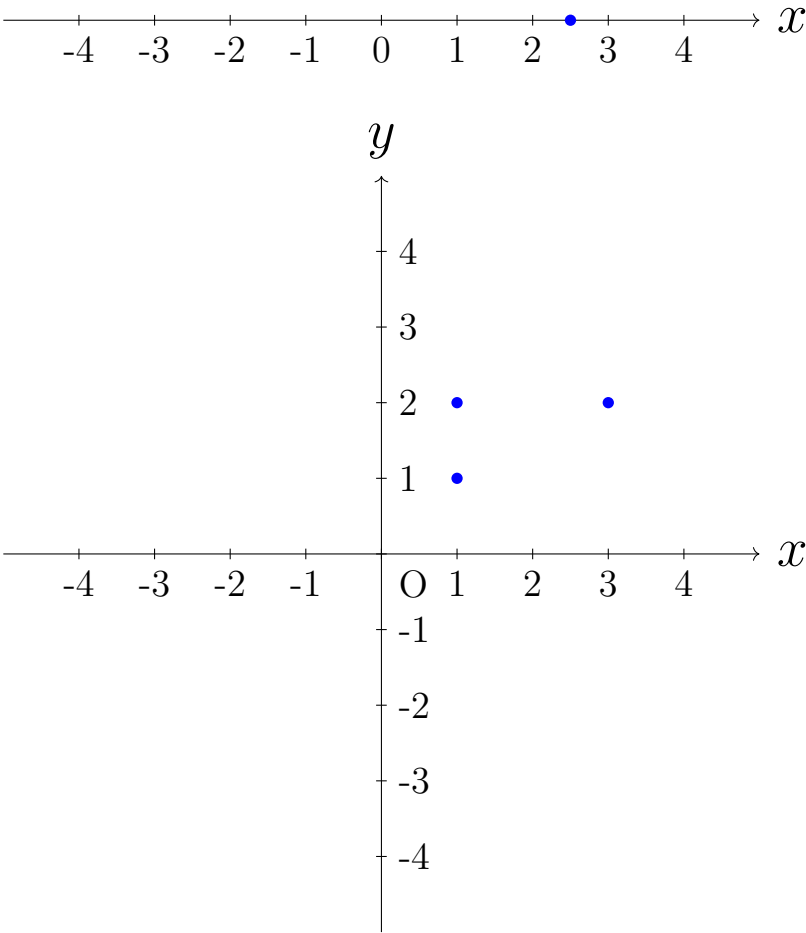
# Notation: Sets



# Notation: Sets



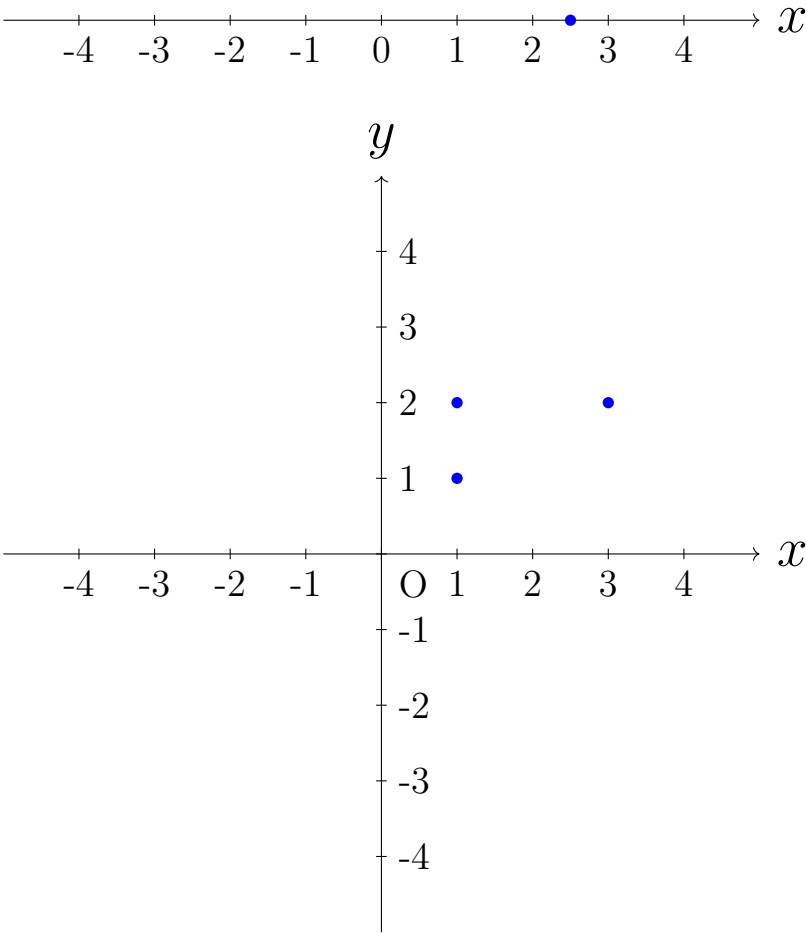
# Notation: Sets





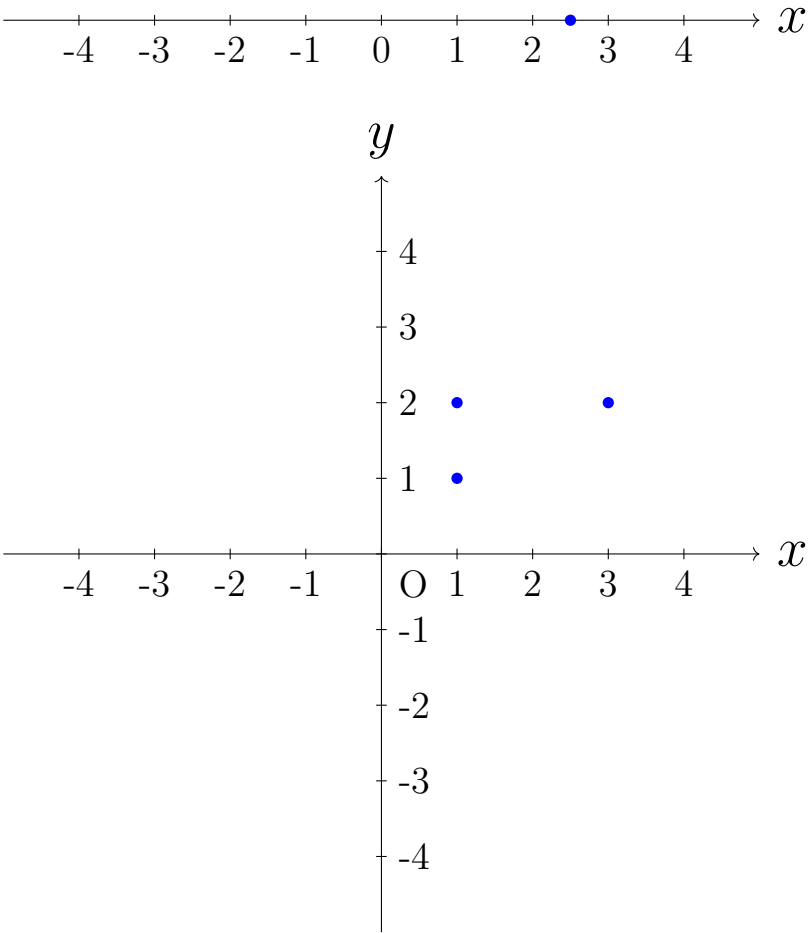
# Notation: Sets

$$\{(1, 1), (1, 2), (1, 3)\}$$



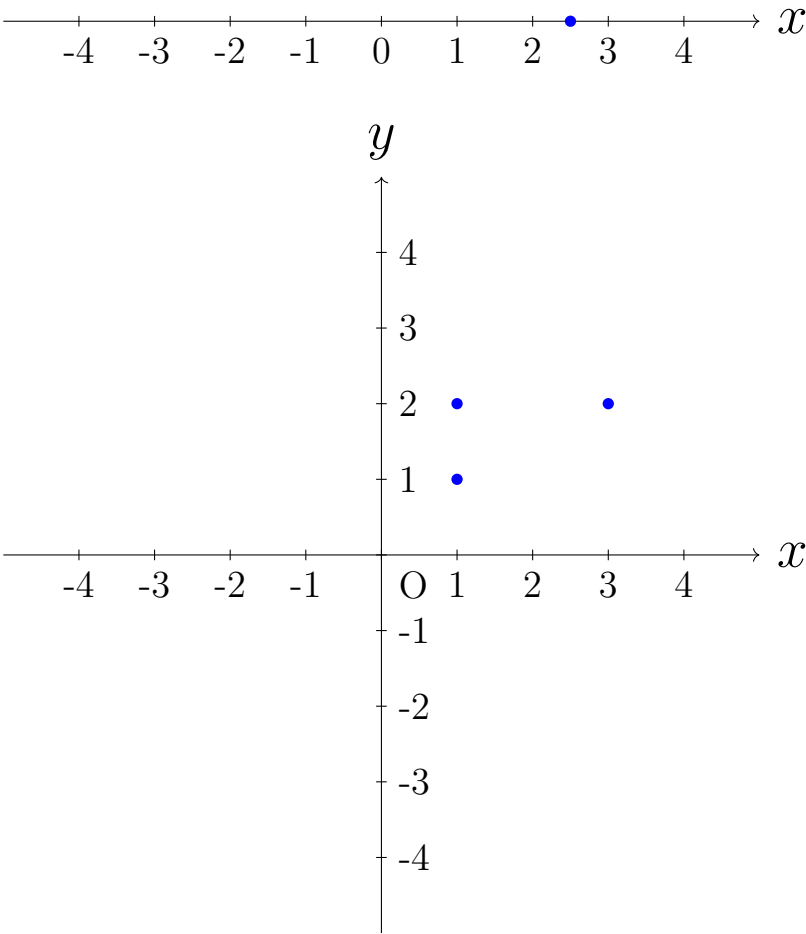
# Notation: Sets

$$S := \{(1, 1), (1, 2), (1, 3)\}$$

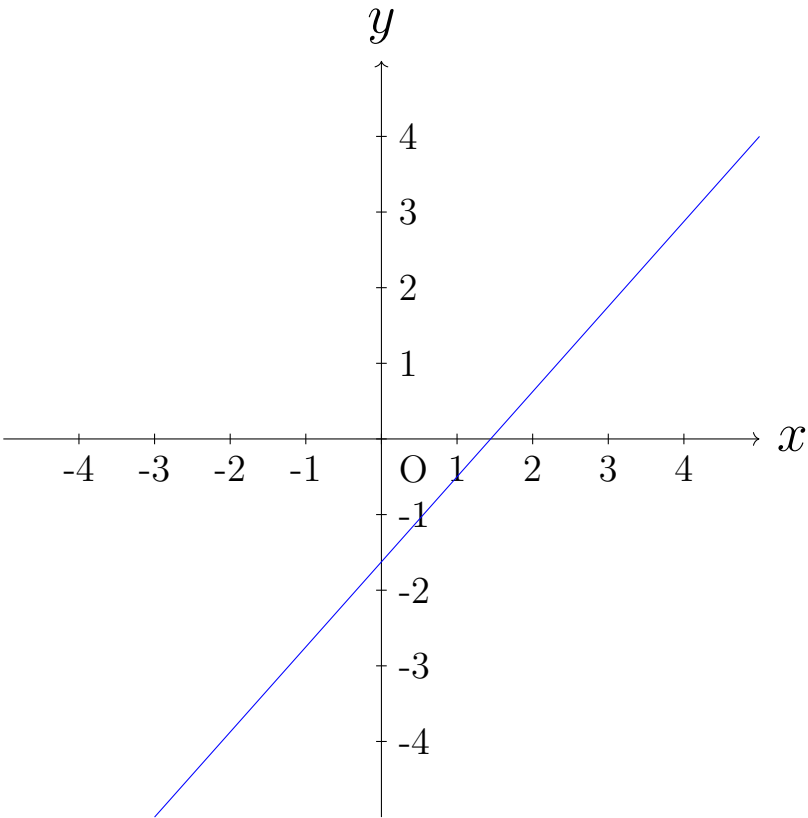
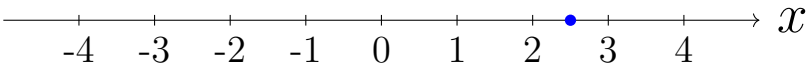


# Notation: Sets

$$S := \{(1, 1), (1, 2), (1, 3)\} \subset \mathbb{R}^2$$



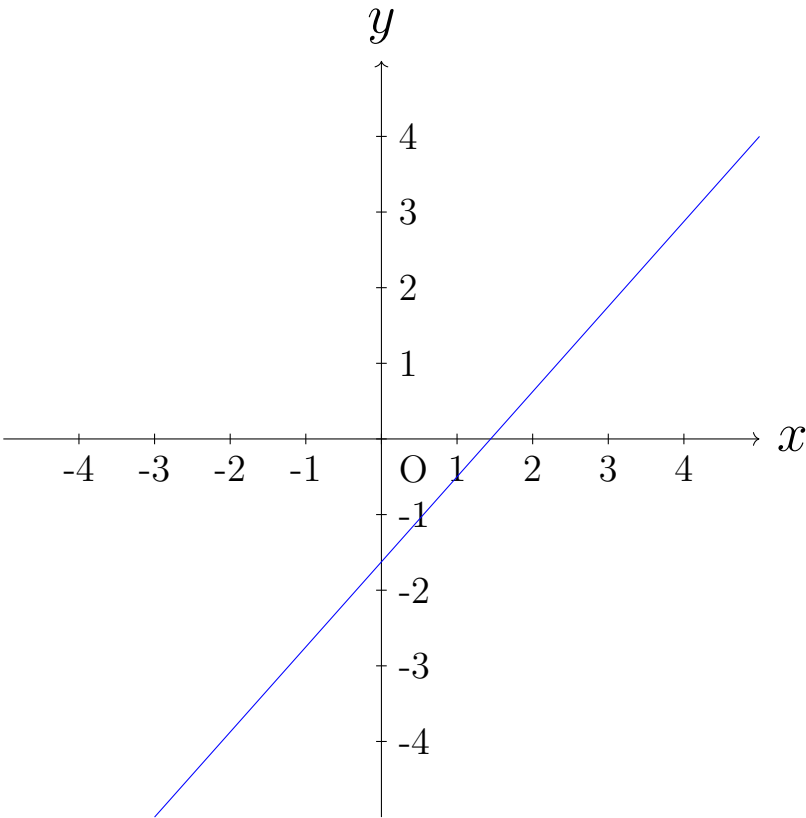
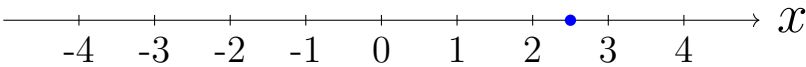
# Notation: Sets



$$S := \{(1, 1), (1, 2), (1, 3)\} \subset \mathbb{R}^2$$

A line,

# Notation: Sets



$$S := \{(1, 1), (1, 2), (1, 3)\} \subset \mathbb{R}^2$$

A line, defined by points  $(x, y)$  in the plane

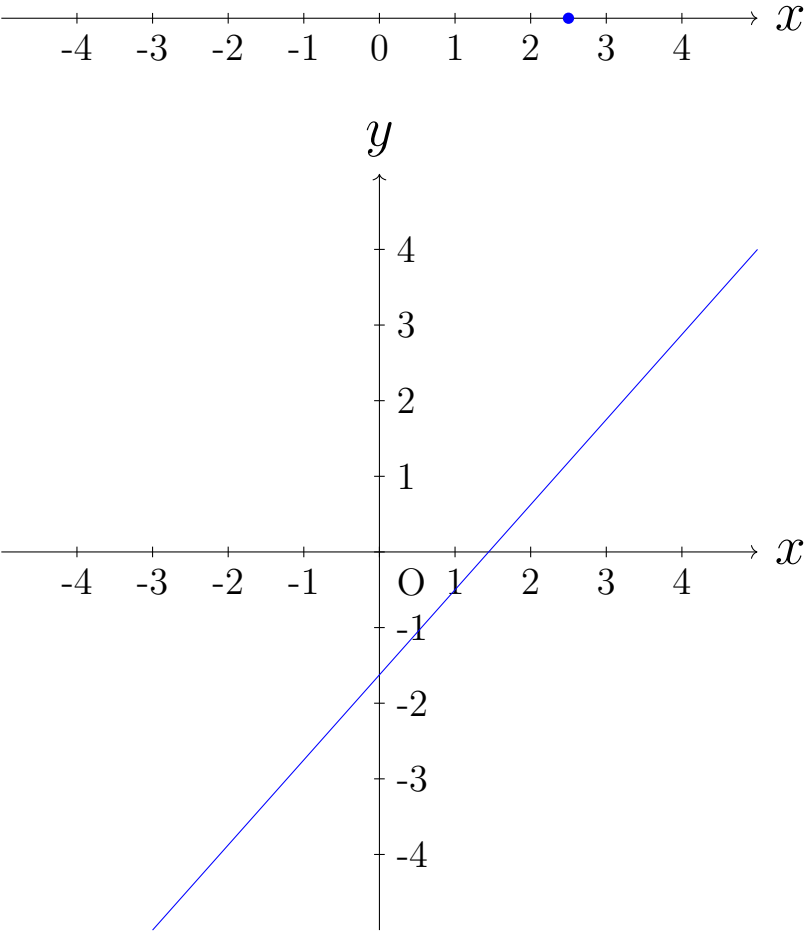
# Notation: Sets



$$S := \{(1, 1), (1, 2), (1, 3)\} \subset \mathbb{R}^2$$

A line, defined by points  $(x, y)$  in the plane so that  $y = x - 1.7$

# Notation: Sets

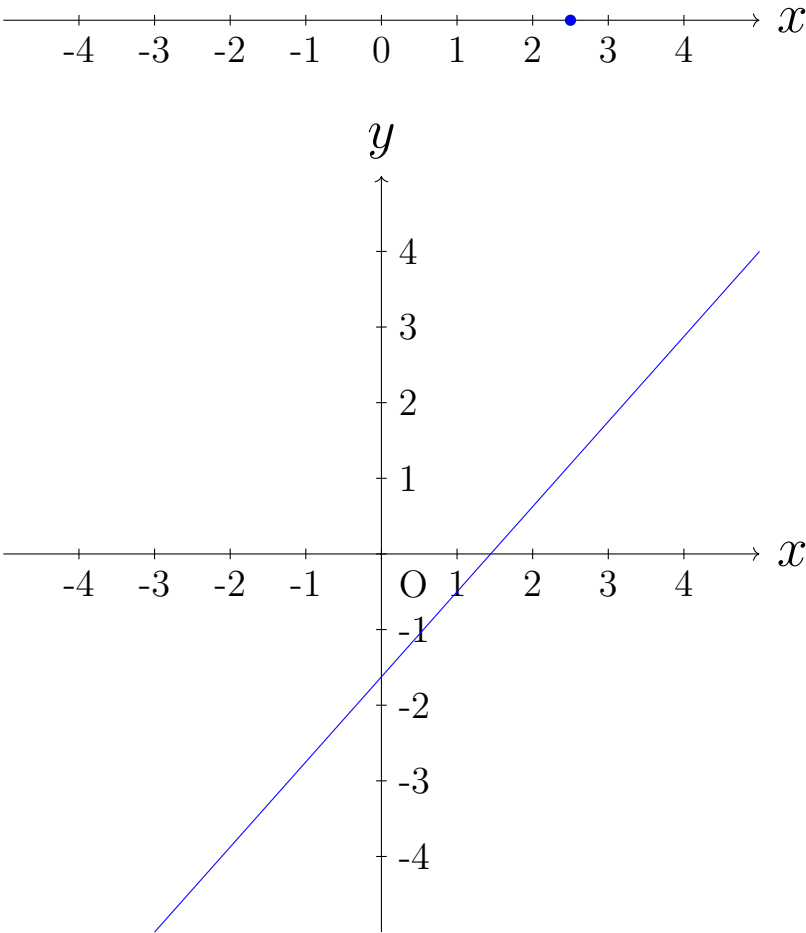


$$S := \{(1, 1), (1, 2), (1, 3)\} \subset \mathbb{R}^2$$

A line, defined by points  $(x, y)$  in the plane so that  $y = x - 1.7$

$$\{???\}$$

# Notation: Sets



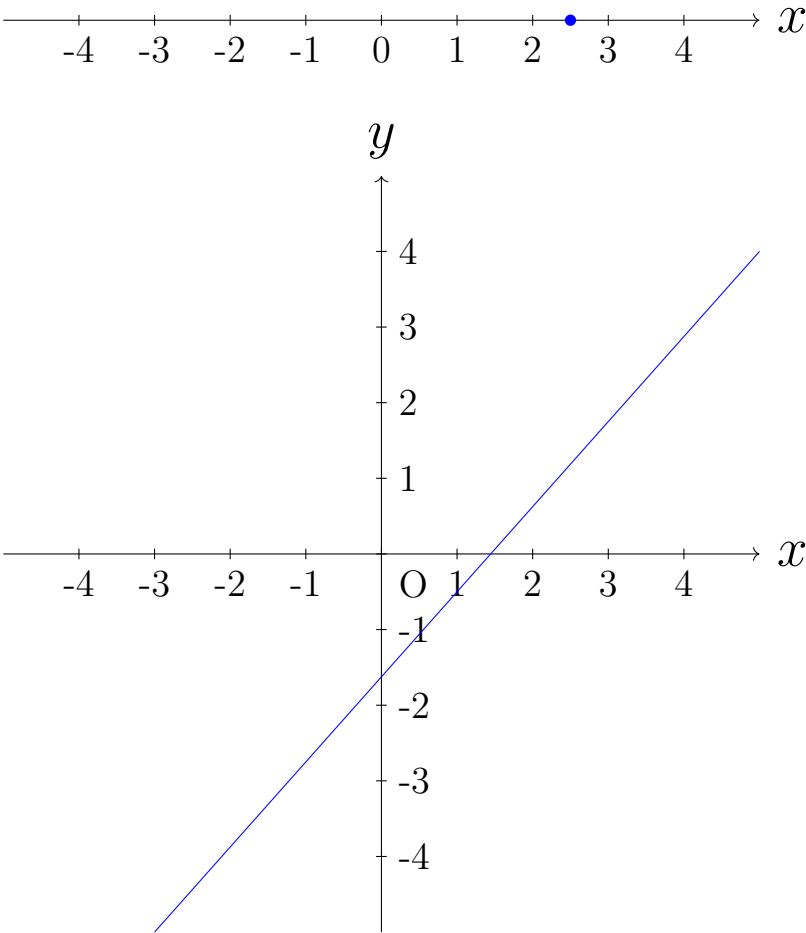
$$S := \{(1, 1), (1, 2), (1, 3)\} \subset \mathbb{R}^2$$

A line, defined by **points**  $(x, y)$  in the plane so that  $y = x - 1.7$

$$\{(x, y)\}$$



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$$\{(x, y) \in \mathbb{R}^2\}$$

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A line, defined by points  $(x, y)$  in the plane so that  $y = x - 1.7$

$$\{(x, y) \in \mathbb{R}^2 \mid \}$$

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A line, defined by points  $(x, y)$  in the plane so that  $y = x - 1.7$

$$\{(x, y) \in \mathbb{R}^2 \mid y = x - 1.75\}$$

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## Examples.

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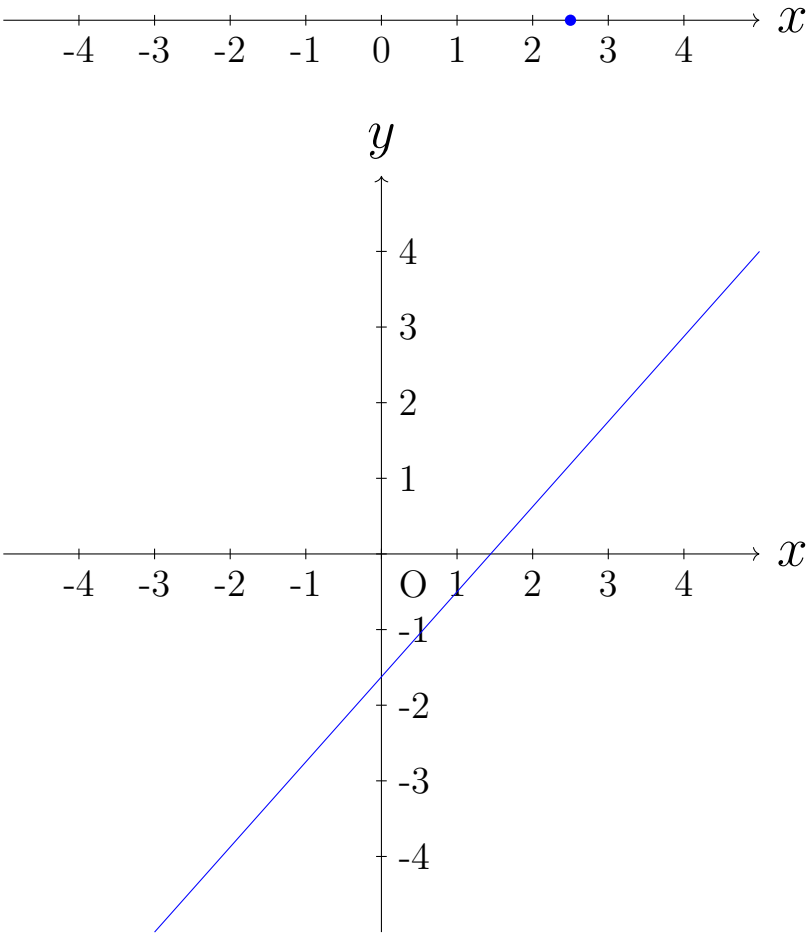
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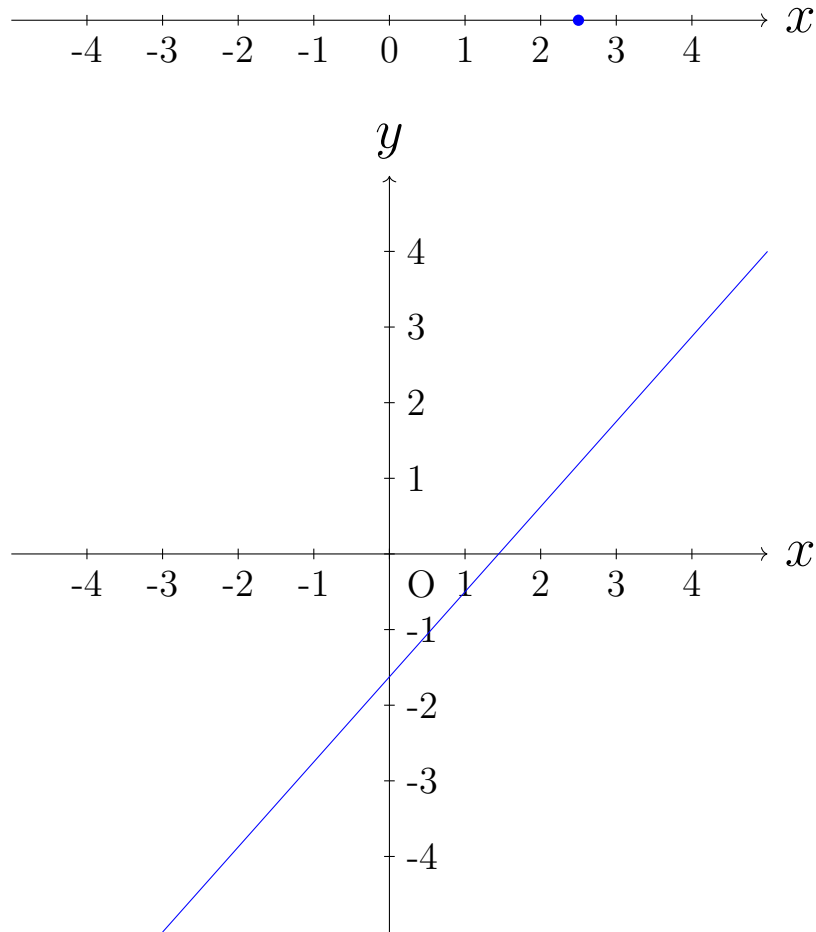
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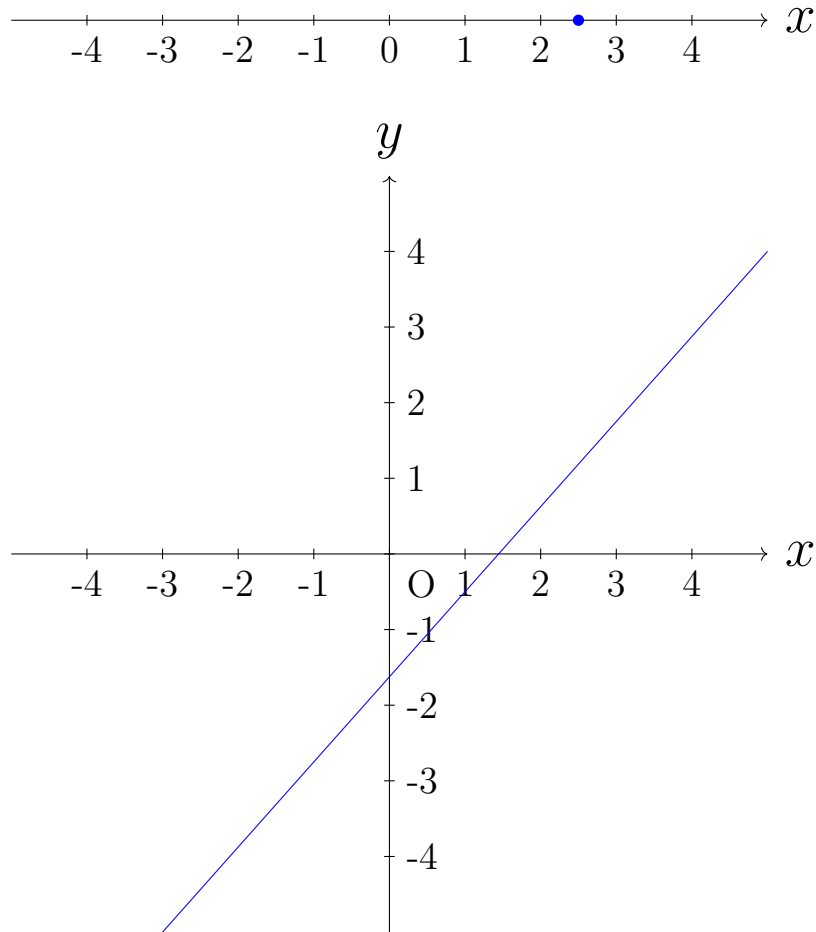
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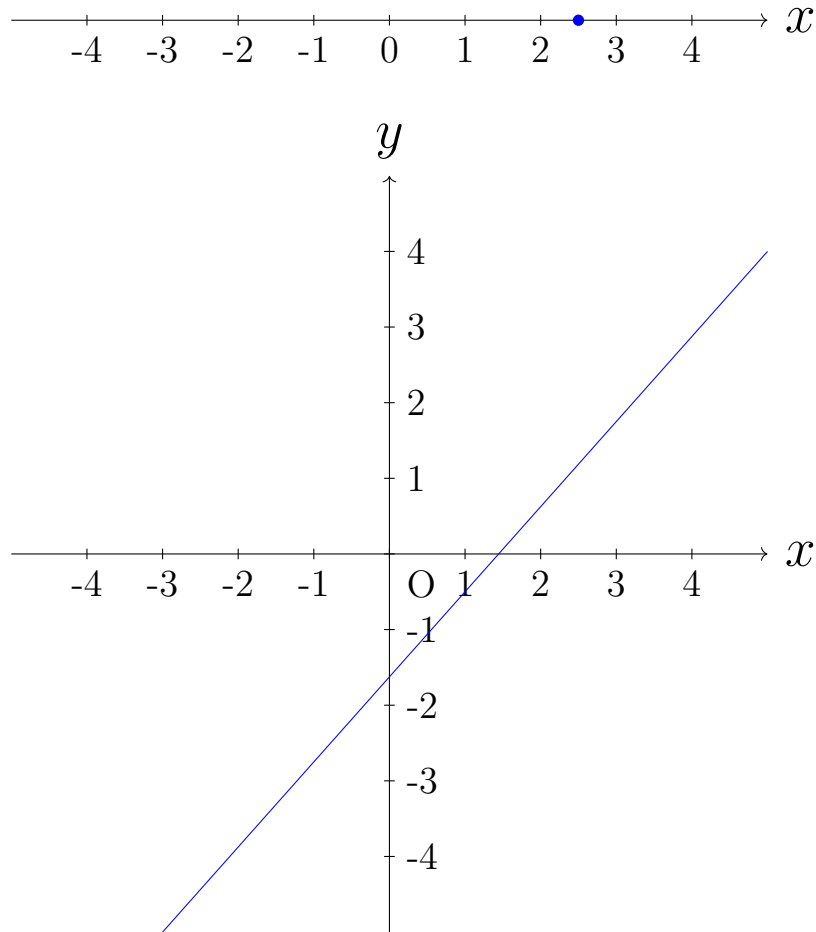
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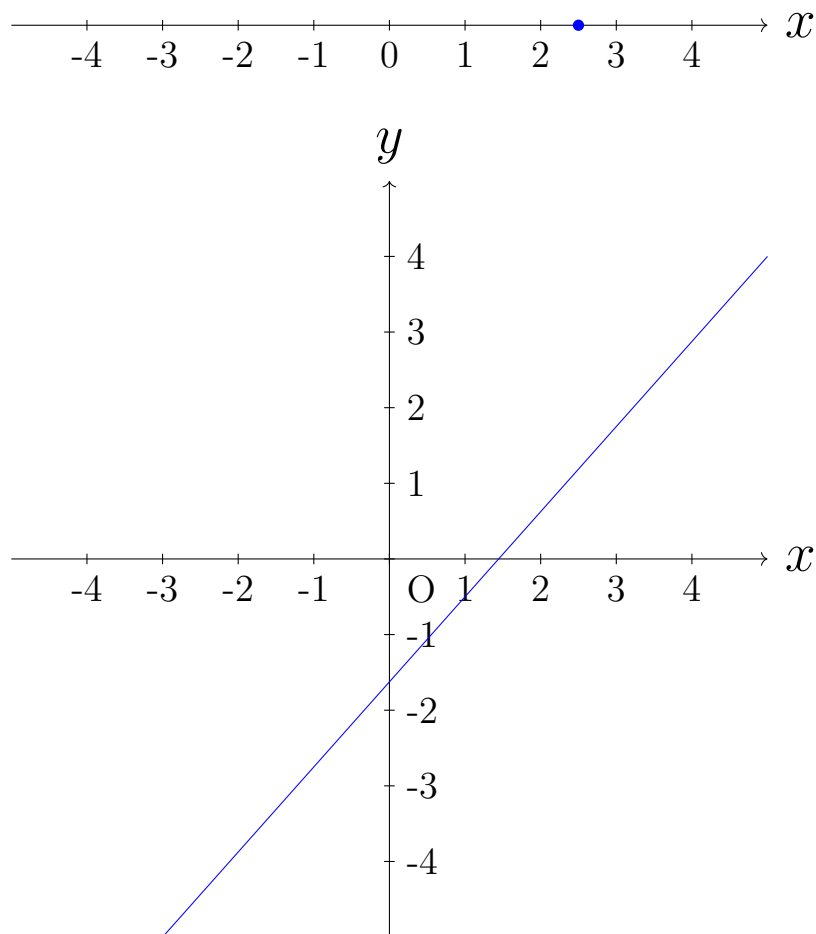
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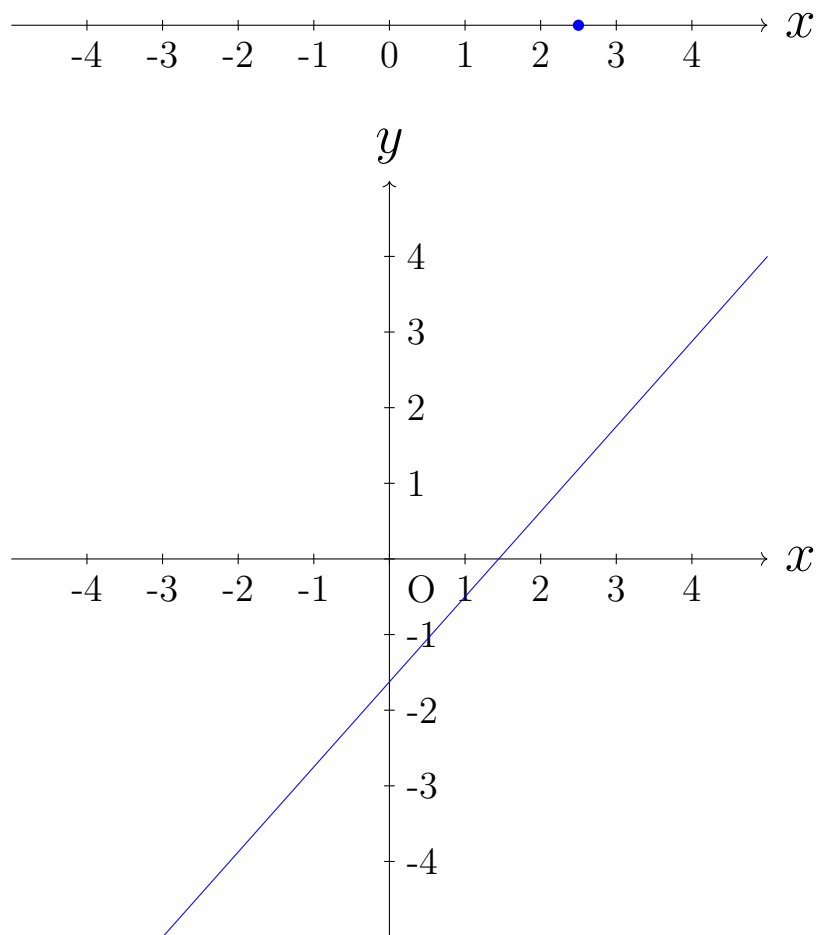
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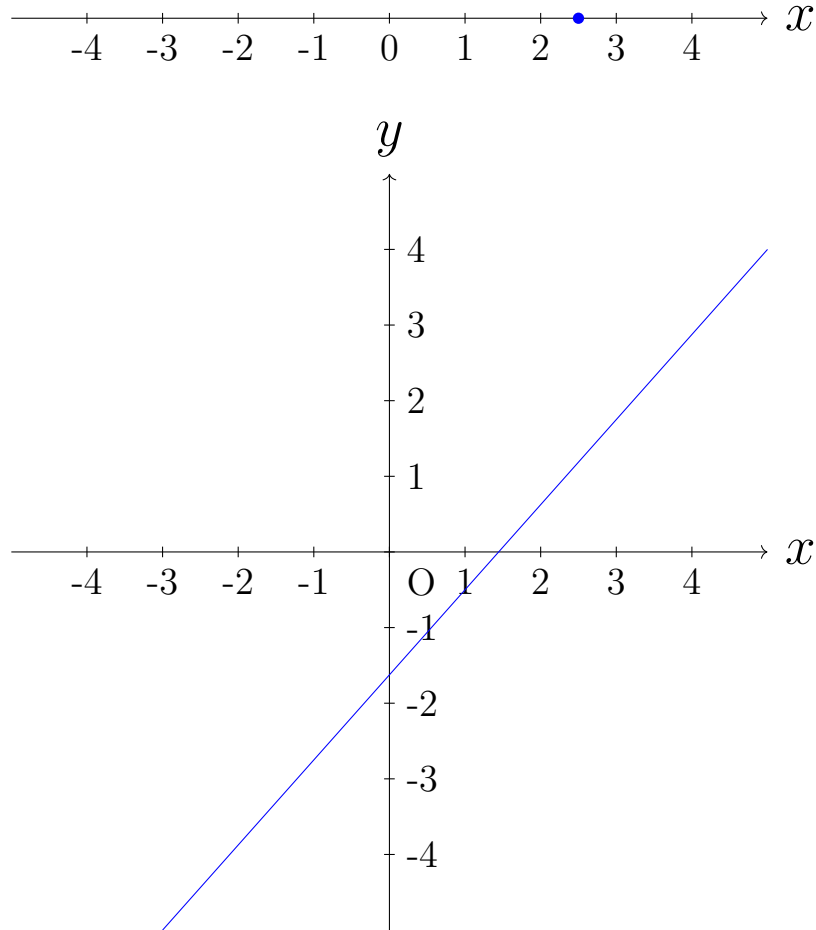
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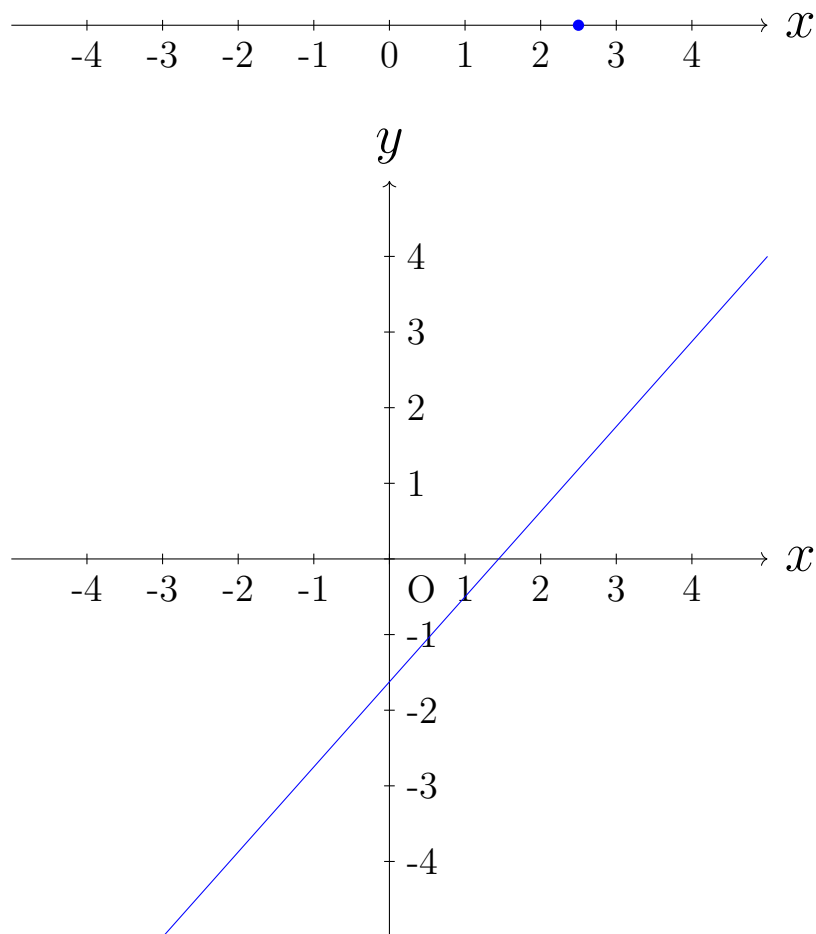
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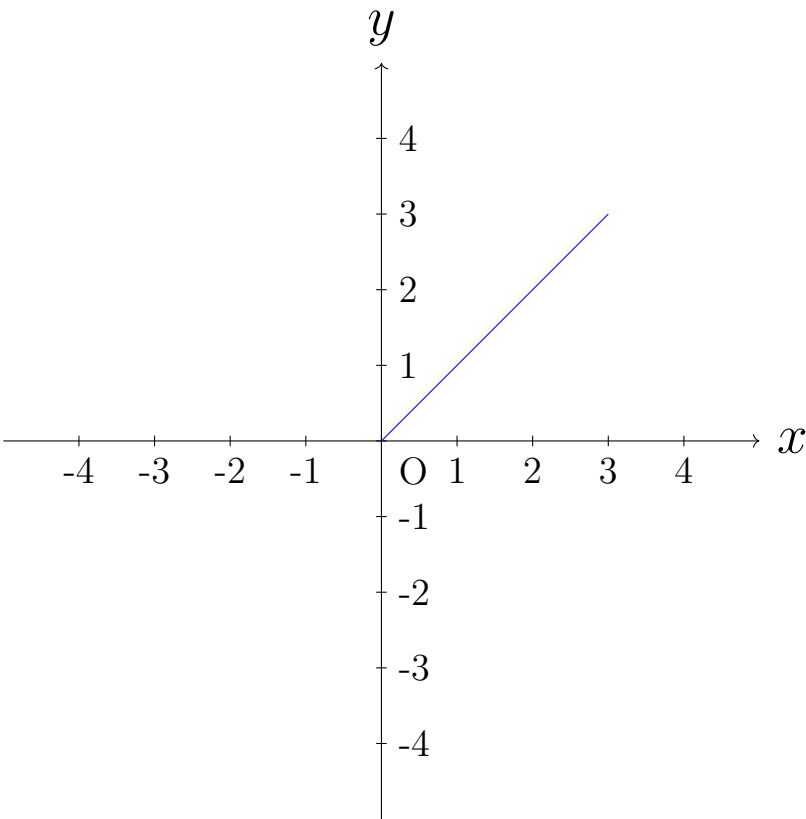
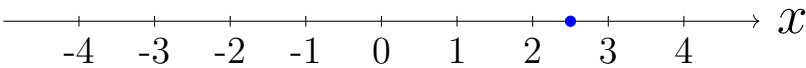
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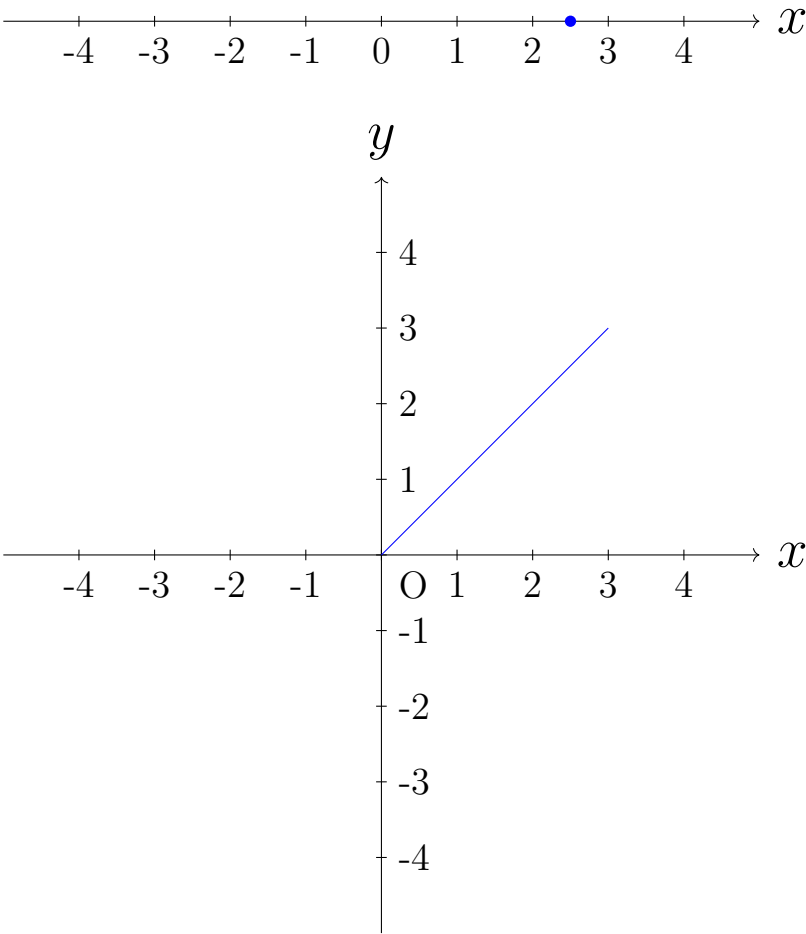
# Notation: Sets

{???



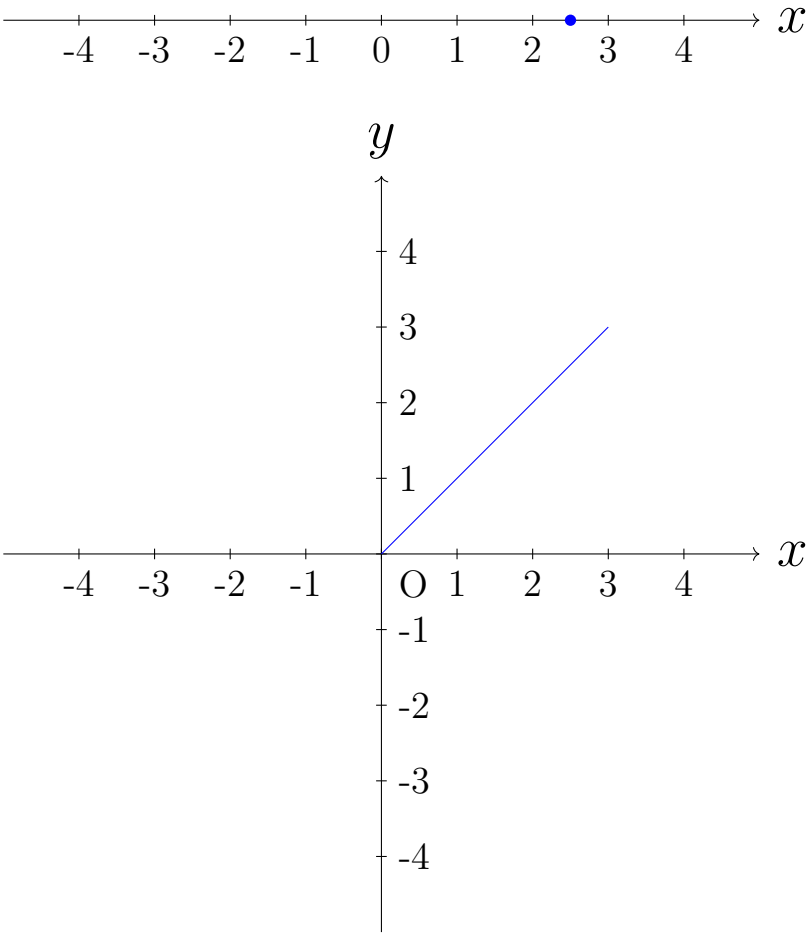
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$$\{(x,y)\}$$



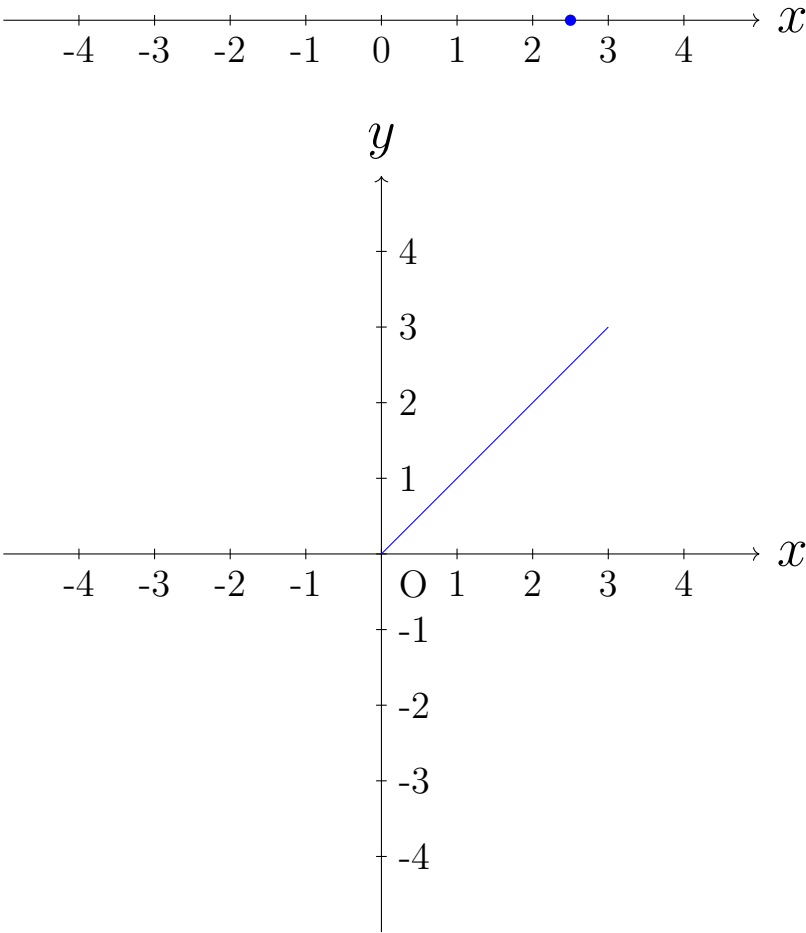
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$$\{(x,y) \in \mathbb{R}^2\}$$



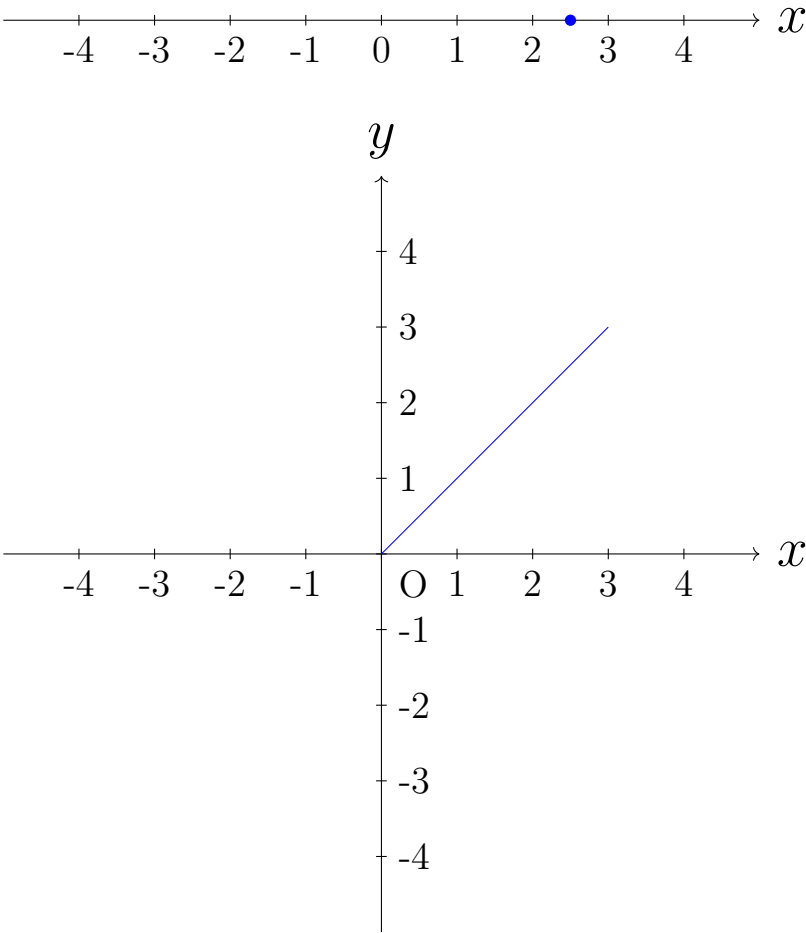
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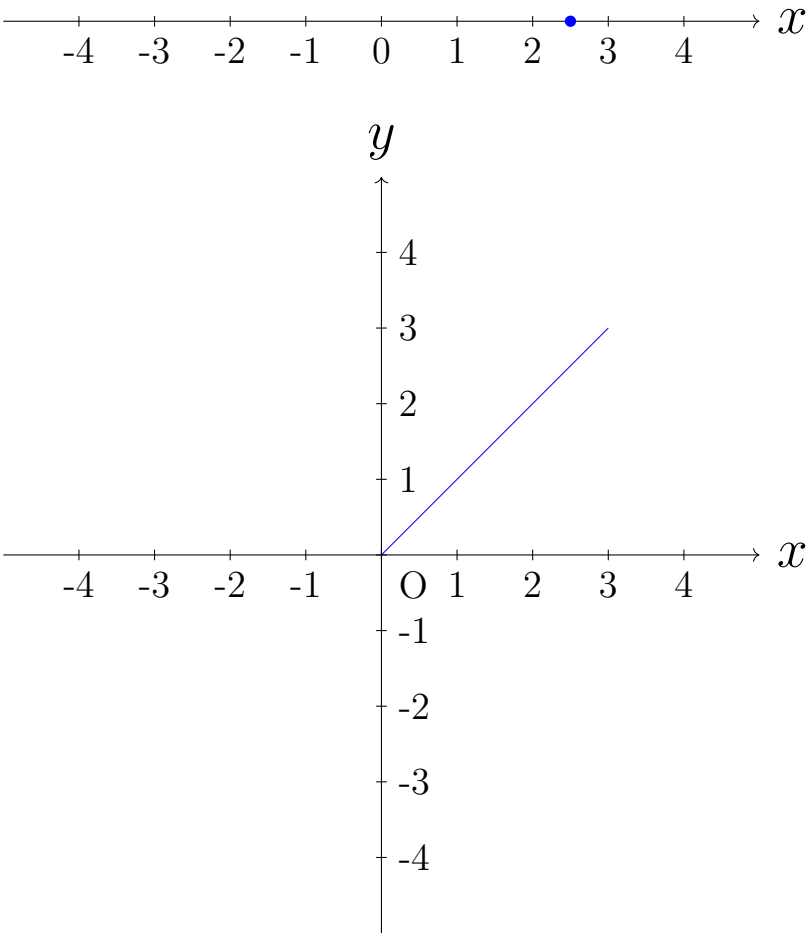
$$\{(x, y) \in \mathbb{R}^2 \mid y = x\}$$





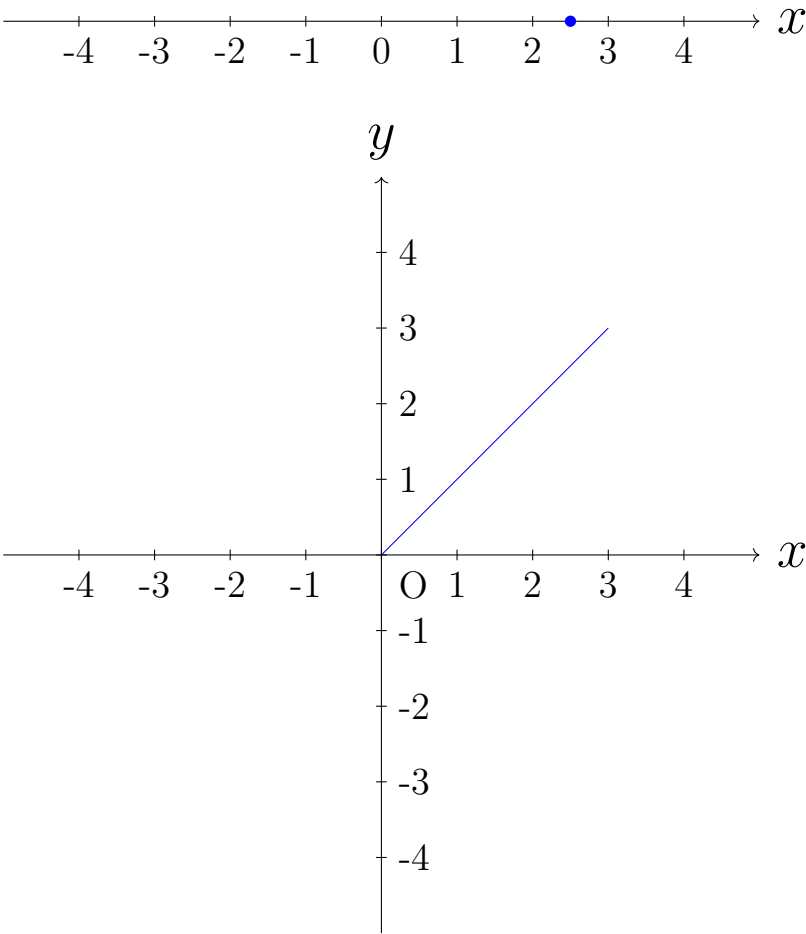
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$$\{(x, y) \in \mathbb{R}^2 \mid y = x, 0 < x\}$$



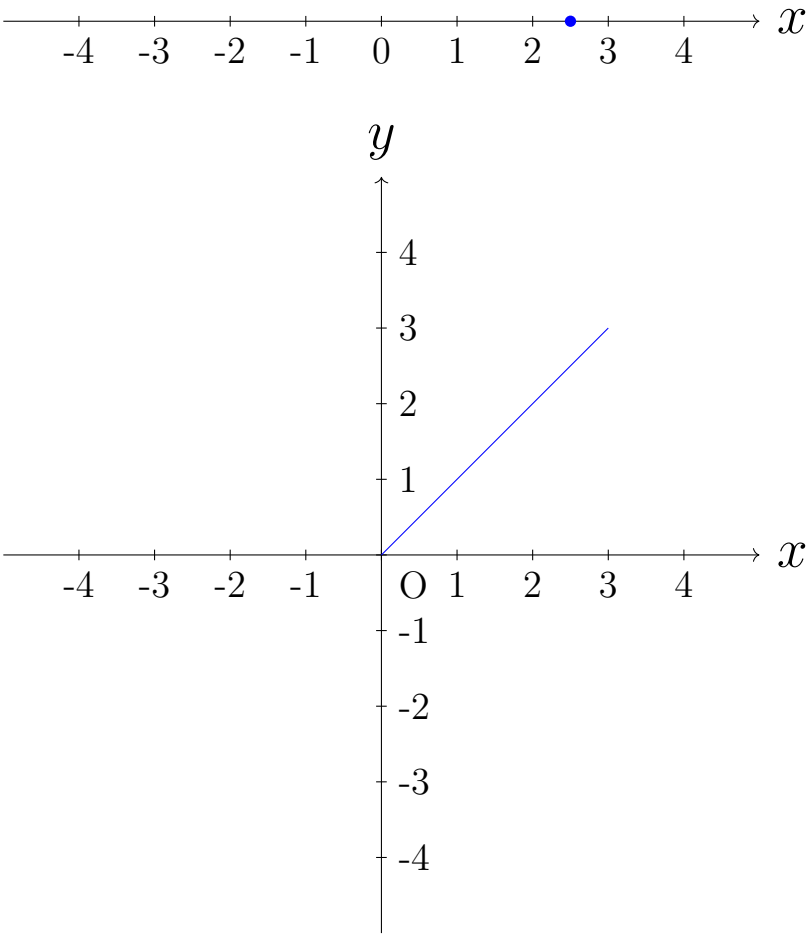
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$$\{(x, y) \in \mathbb{R}^2 \mid y = x, 0 < x < 3\}$$



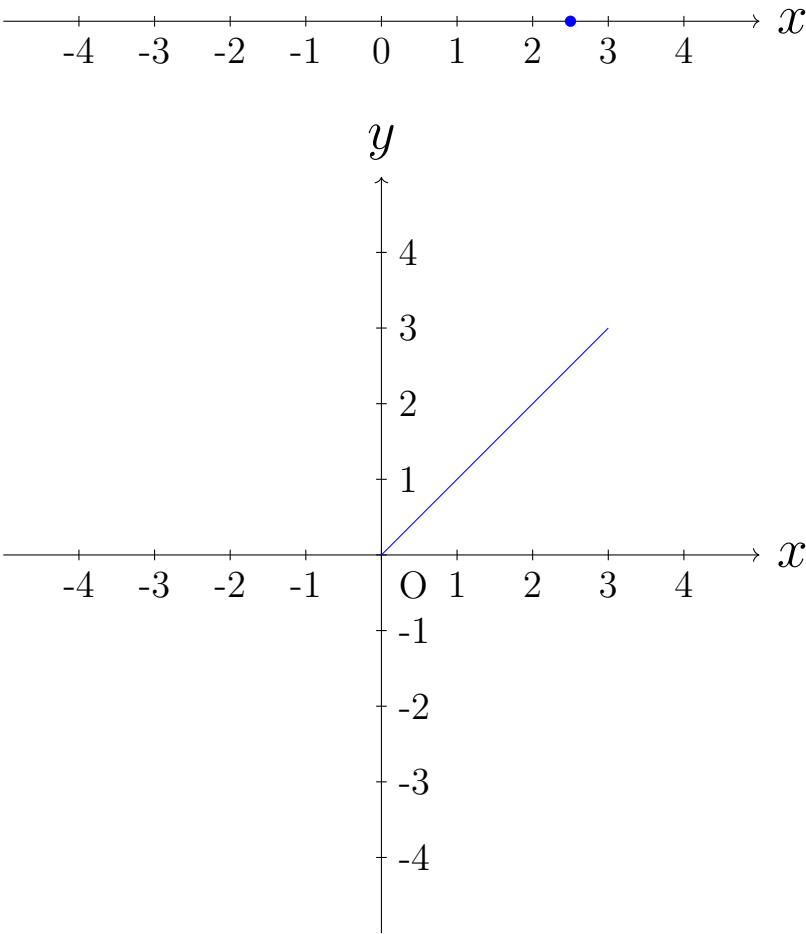
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$$L := \{(x, y) \in \mathbb{R}^2 \mid y = x, 0 < x < 3\}$$



# Notation: Sets

$$L := \{(x, y) \in \mathbb{R}^2 \mid y = x, x \in (0, 3)\}$$



# Notation: Functions

# Notation: Functions

$\mathbb{R}$

# Notation: Functions

$$\mathbb{R} \rightarrow \mathbb{R}$$

# Notation: Functions

$$f : \mathbb{R} \rightarrow \mathbb{R}$$



# Notation: Functions

$$f : \mathbb{R} \rightarrow \mathbb{R}$$

$$f(x) = x - 1.75$$

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$$\gamma : \mathbb{R} \rightarrow \mathbb{R}^2$$

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$$\gamma : \mathbb{R} \rightarrow \mathbb{R}^2$$

$$\gamma(t) = (\cos(t), \sin(t))$$

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$$g : \{1, 2\} \rightarrow \{1, 2, 3\}$$

$$g(1) = 3$$

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**Notation: Functions**

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$$f : \mathbb{R}^2 \rightarrow \mathbb{R}$$

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**Definition.** A “parametrized plane curve”

# Notation: Functions

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$$g : \{1, 2\} \rightarrow \{1, 2, 3\}$$

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**Definition.** A “parametrized plane curve” is a function,  
 $\gamma$

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**Definition.** A “parametrized plane curve” is a function,  
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**Definition.** A “parametrized plane curve” is a function,  
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**Notation: Functions**

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$$\gamma : (-\pi, \pi) \rightarrow \mathbb{R}^2$$

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**Definition.** A “parametrized plane curve” is a function,  
 $\gamma : (\alpha, \beta) \rightarrow \mathbb{R}^2$ .

Explicitly,  
 $\gamma(t) = (f_1(t), f_2(t))$ , for planes



# Notation: Functions

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