

Def: considerăm două mulțimi nevide A și B. Spunem că am definit o funcție de la A la B dacă ORICĂRUI element din A îi corespunde un UNIC element în mulțimea B.

Funcții: definire, reprezentare

Exemple:

Reprezentarea grafică

Legea de definiție:  
 $f: \mathbb{R} \rightarrow \mathbb{R}, f(x) = x - 1$

Tabelul de valori

x	-3	-2	0	4			
f(x)	-4	-3	-1	3			

Graficul funcției f:

Stabiliti diagramele care reprezintă funcții:



(DA)  $\Rightarrow f: A \rightarrow B$

$\rightarrow$  domeniul de definiție  
 $\rightarrow$  domeniul de valori (codomeniu)

A  $f$  B

numele funcției  $f$

legea de definiție  $f(x) = 2x + 1$

argumentul funcției  $x$

imaginea lui  $x$  prin funcția  $f$

$$f(1) = 2 \cdot 1 + 1 = 3$$

$$f(2) = 2 \cdot 2 + 1 = 5$$

$$f(3) = 2 \cdot 3 + 1 = 7$$

TABELUL DE VALORI

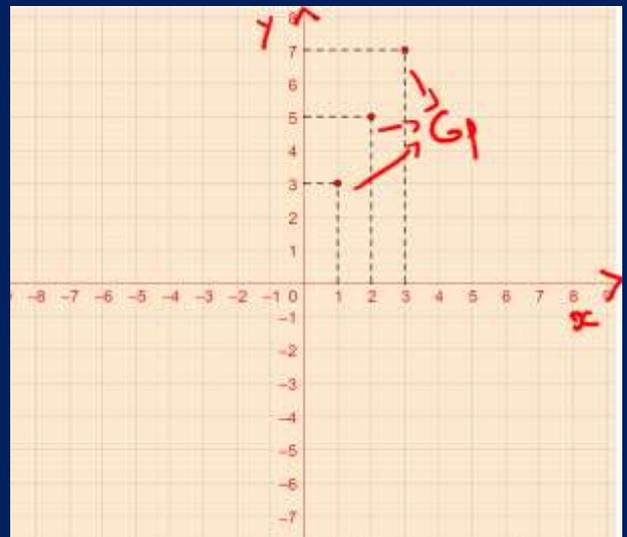
x	1	2	3
f(x)	3	5	7

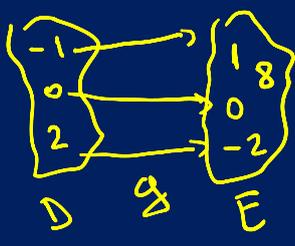
Graficul funcției  $\Rightarrow$

$$G_f = \{(x, f(x)) \mid x \in A\} \Rightarrow$$

$$G_f = \{(1, 3), (2, 5), (3, 7)\}$$

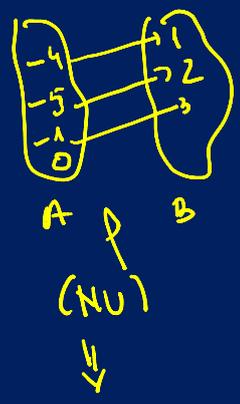
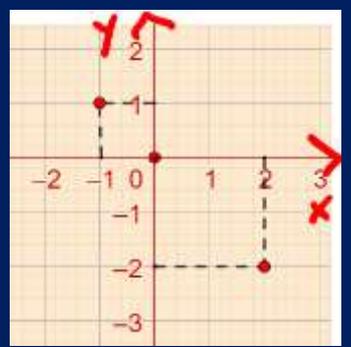
interpretarea geometrică  $\rightarrow$   
 a graficului funcției



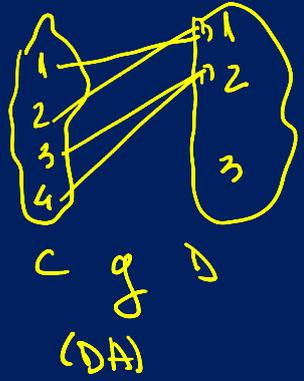


$g: D \rightarrow E$   
 $g(x) = -x$

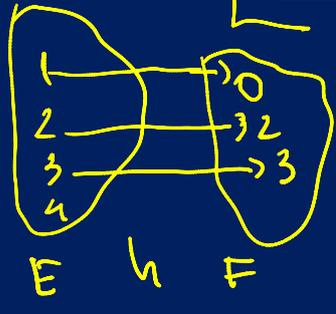
$x \begin{array}{|c|c|c|} \hline -1 & 0 & 2 \\ \hline \end{array}$   
 $g(x) \begin{array}{|c|c|c|} \hline 1 & 0 & -2 \\ \hline \end{array}$



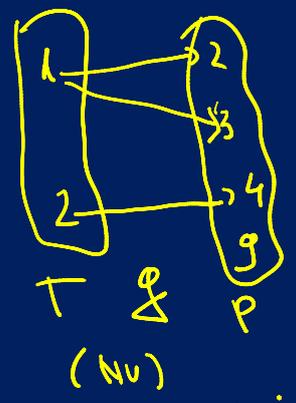
A → B  
(NU)



C → D  
(DA)



E → F  
(NU)



T → P  
(NU)

Nr. 0 nu are imagine

Nr. 4 nu are imagine

1 are 2 imagini

Reprezentarea grafică a funcției de gradul I  
 Se consideră funcția  $f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $f(x) = 2x - 6$

Introduceți valorile dorite pentru  $x_1$  și  $x_2$ :

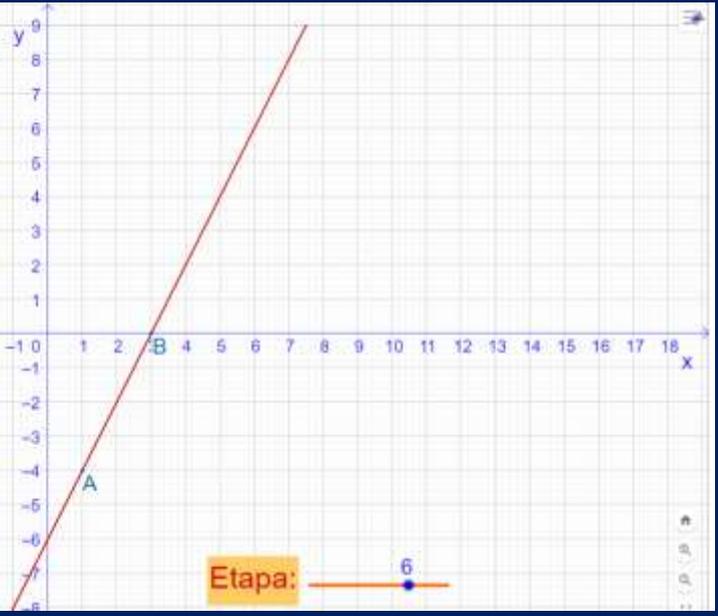
$x_1 = 1$   $f(1) = 2 \cdot (1) - 6 = -4$

$y_1 = -4$   $A(1, -4) \in G_f$

$x_2 = 3$   $f(3) = 2 \cdot (3) - 6 = 0$

$y_2 = 0$   $B(3, 0) \in G_f$

Graficul funcției: Start



Se consideră  $f: \mathbb{N} \rightarrow \mathbb{R}$ ,  $f(x) = ax + b$ ,  $a \in \mathbb{R}$ ,  $b \in \mathbb{R}$ .

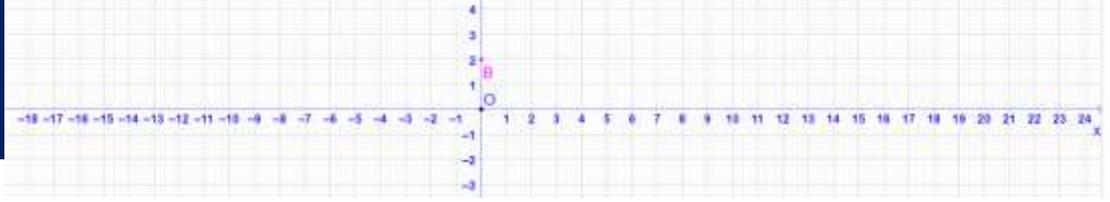
$f(x) = 3 \cdot x + 2$

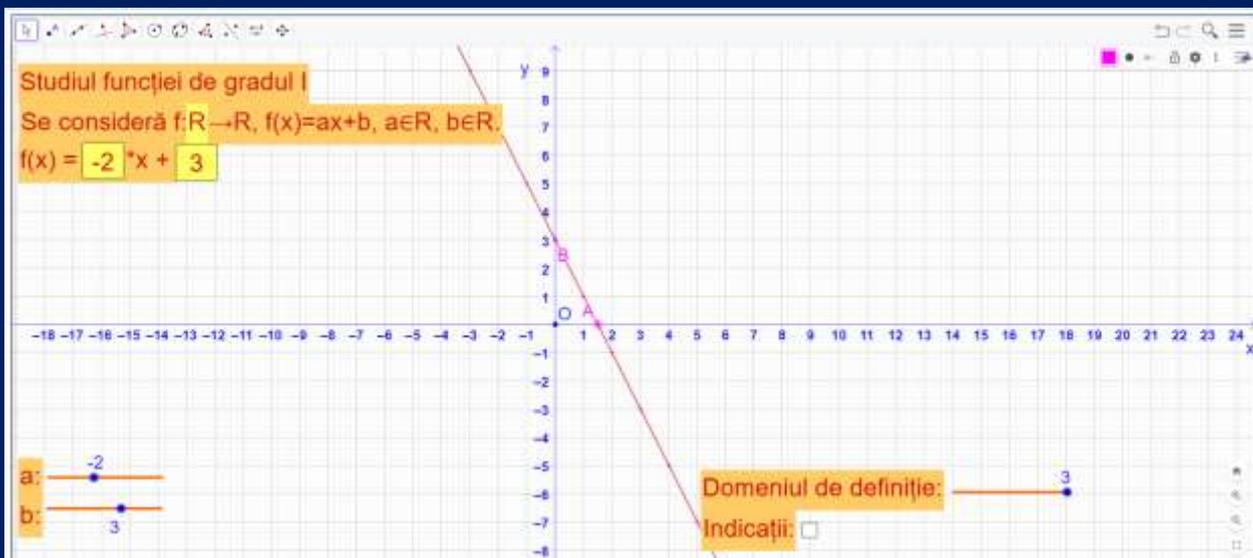
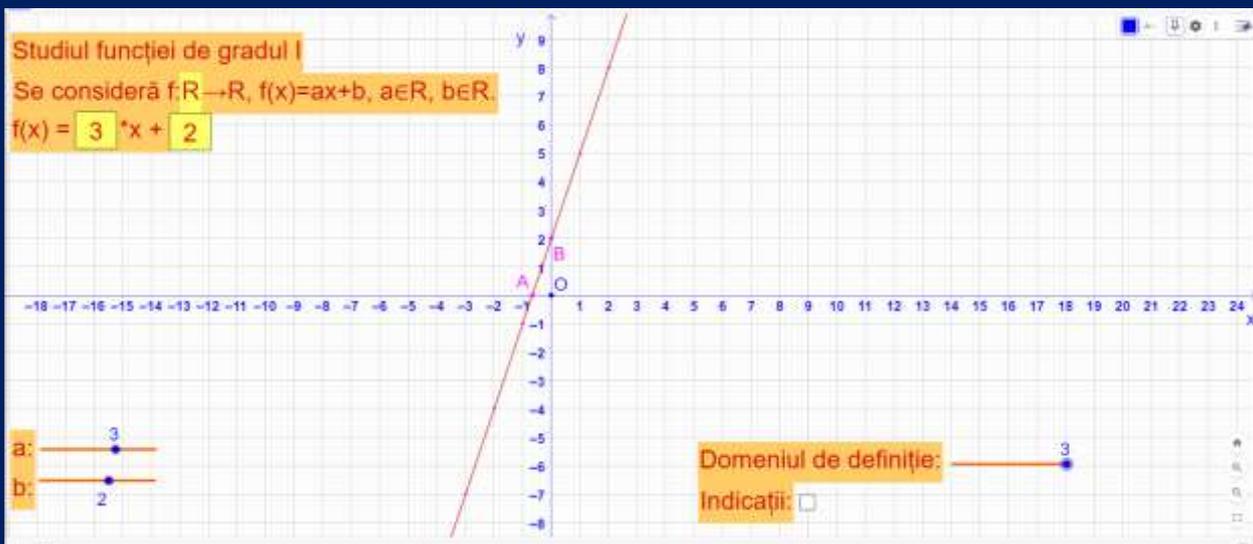
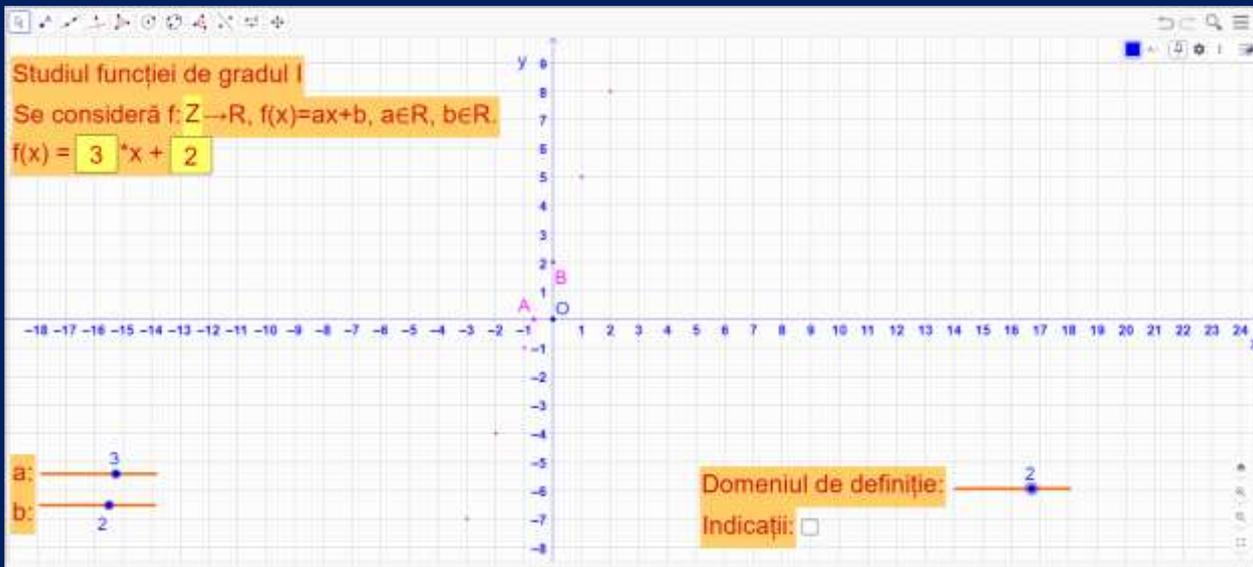
x	0	1	2	3	4	5	6
f(x)	2	5	8	11	14	17	20

Studiul funcției de gradul I

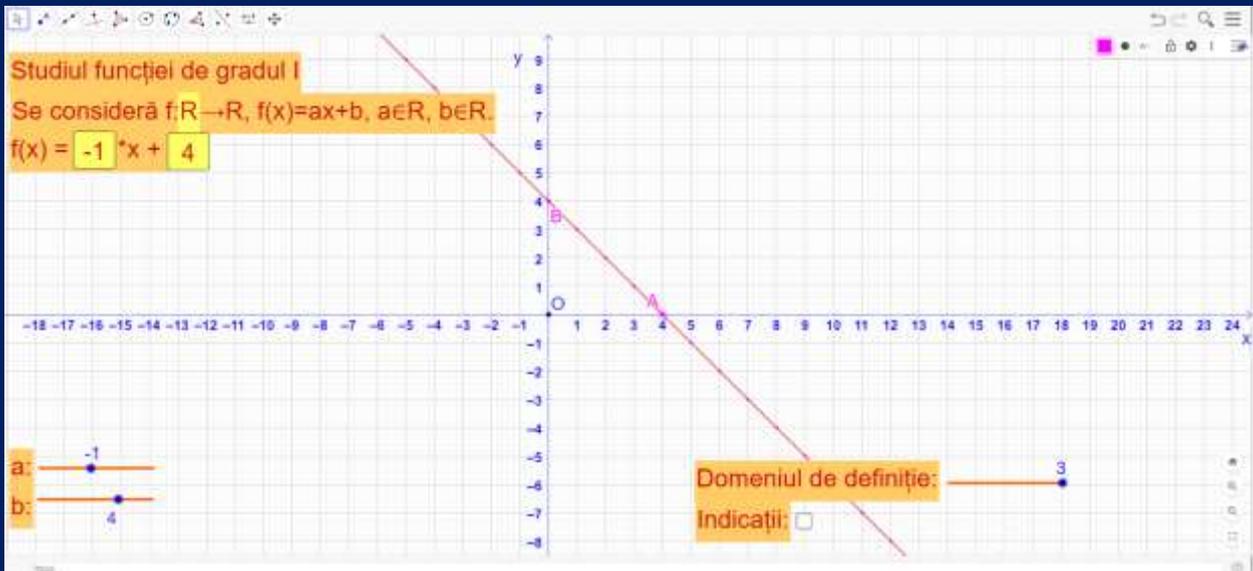
Se consideră  $f: \mathbb{N} \rightarrow \mathbb{R}$ ,  $f(x) = ax + b$ ,  $a \in \mathbb{R}$ ,  $b \in \mathbb{R}$ .

$f(x) = 3 \cdot x + 2$

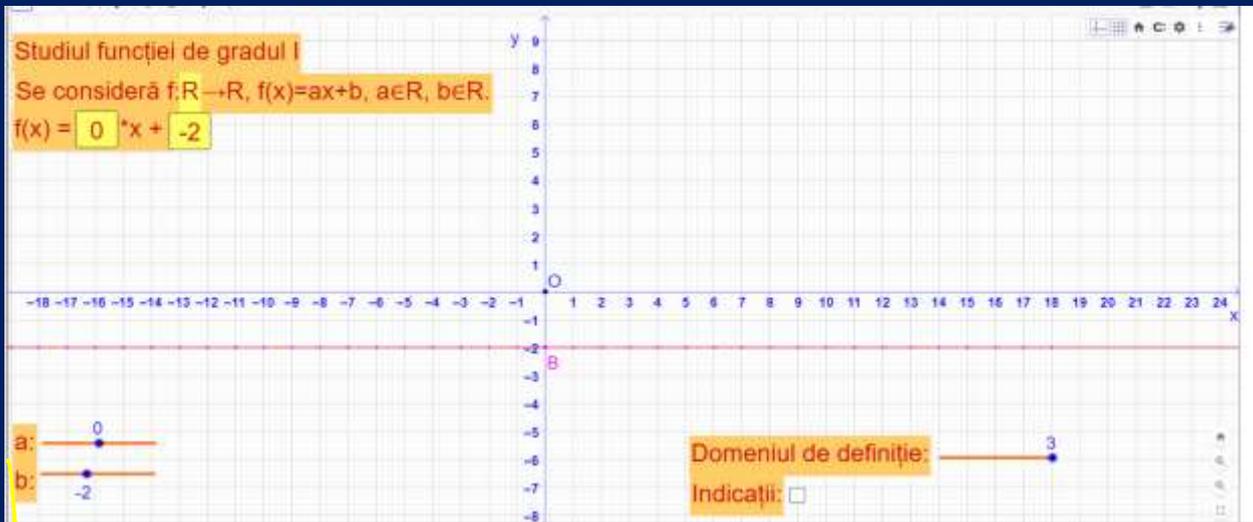




$$\begin{array}{r|l}
 x & 0 \quad 1.5 \\
 f(x) & 3 \quad 0
 \end{array}
 \quad
 f(0) = -2 \cdot 0 + 3 = 3
 \quad
 f(1.5) = -2 \cdot 1.5 + 3 = -3 + 3 = 0$$



$$\begin{array}{c|c|c|c|} x & 0 & 4 & \\ \hline f(x) & 4 & 0 & \end{array} \quad f(0) = -1 \cdot 0 + 4 = 4 \quad f(4) = -1 \cdot 4 + 4 = 0$$



$$\left. \begin{array}{l} f: \mathbb{R} \rightarrow \mathbb{R} \\ f(x) = 0 \cdot x - 2 = 0 - 2 = -2 \end{array} \right\} \Rightarrow f(x) = -2, (\forall) x \in \mathbb{R} \quad \begin{array}{c|c|c|c|} x & 0 & 1 & 2 & \\ \hline f(x) & -2 & -2 & -2 & \end{array}$$

