

UN ESEMPIO IMPORTANTE...

LA FUNZIONE LINEARE

# FUNZIONE LINEARE

ESPRESSA DA UN'EQUAZIONE DEL TIPO:

$$y = mx + q$$



**RETТА NEL PIANO  
CARTESIANO**

# ESEMPIO

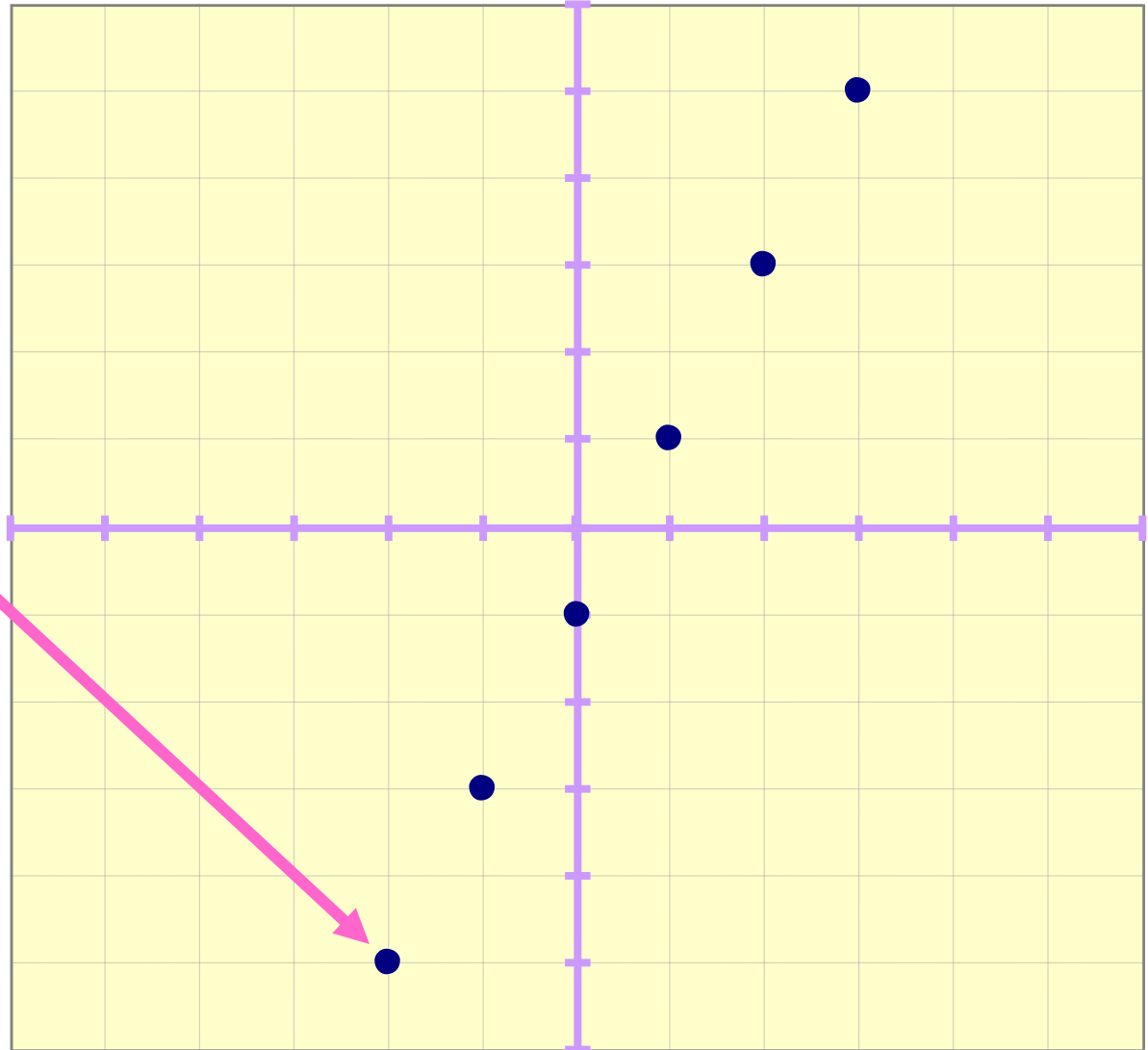
$$y = 2x - 1$$

$$y = 2x - 1$$

x	y
-2	-5
-1	-3
0	-1
1	1
2	3
3	5

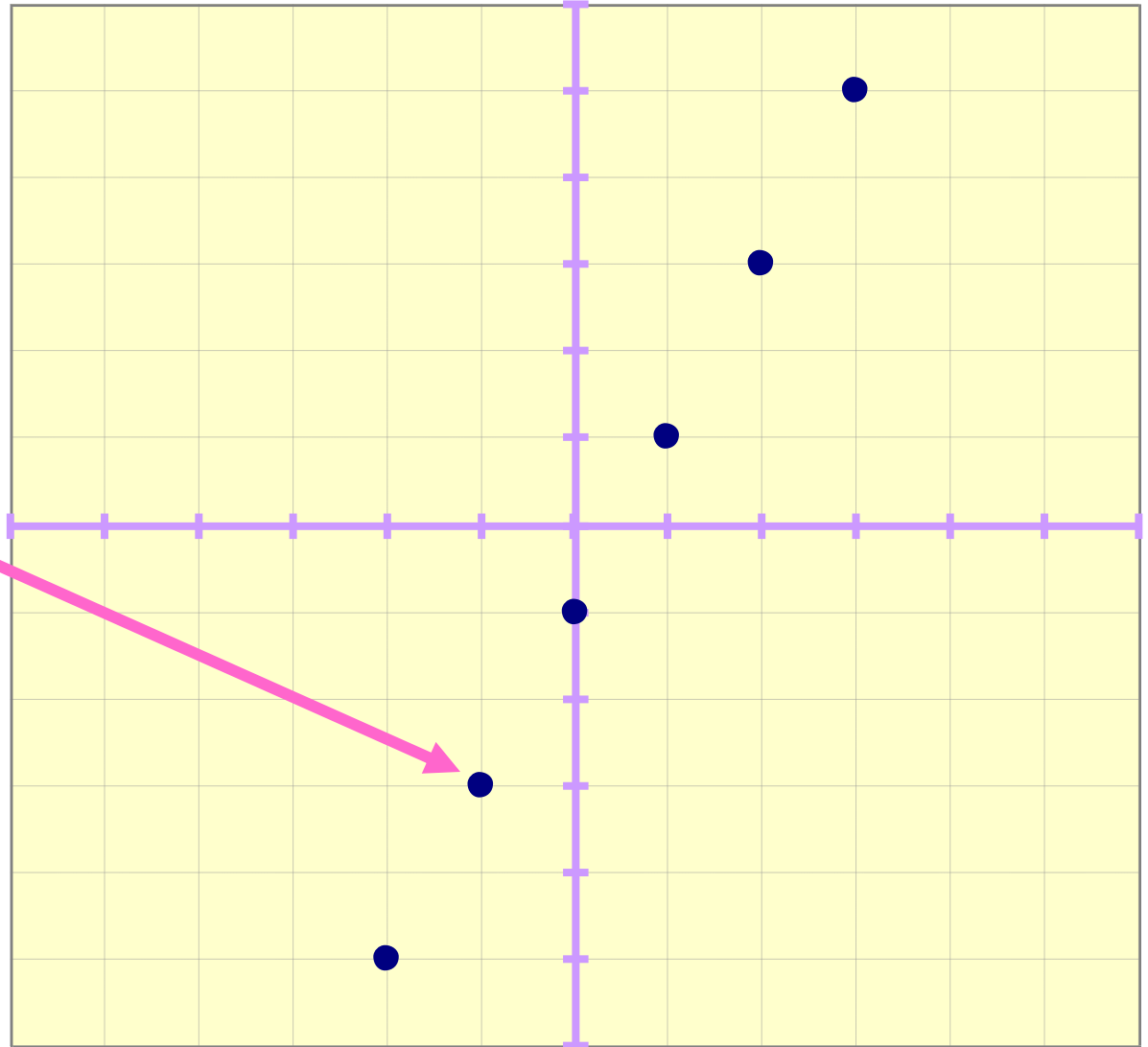
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0	-1
1	1
2	3
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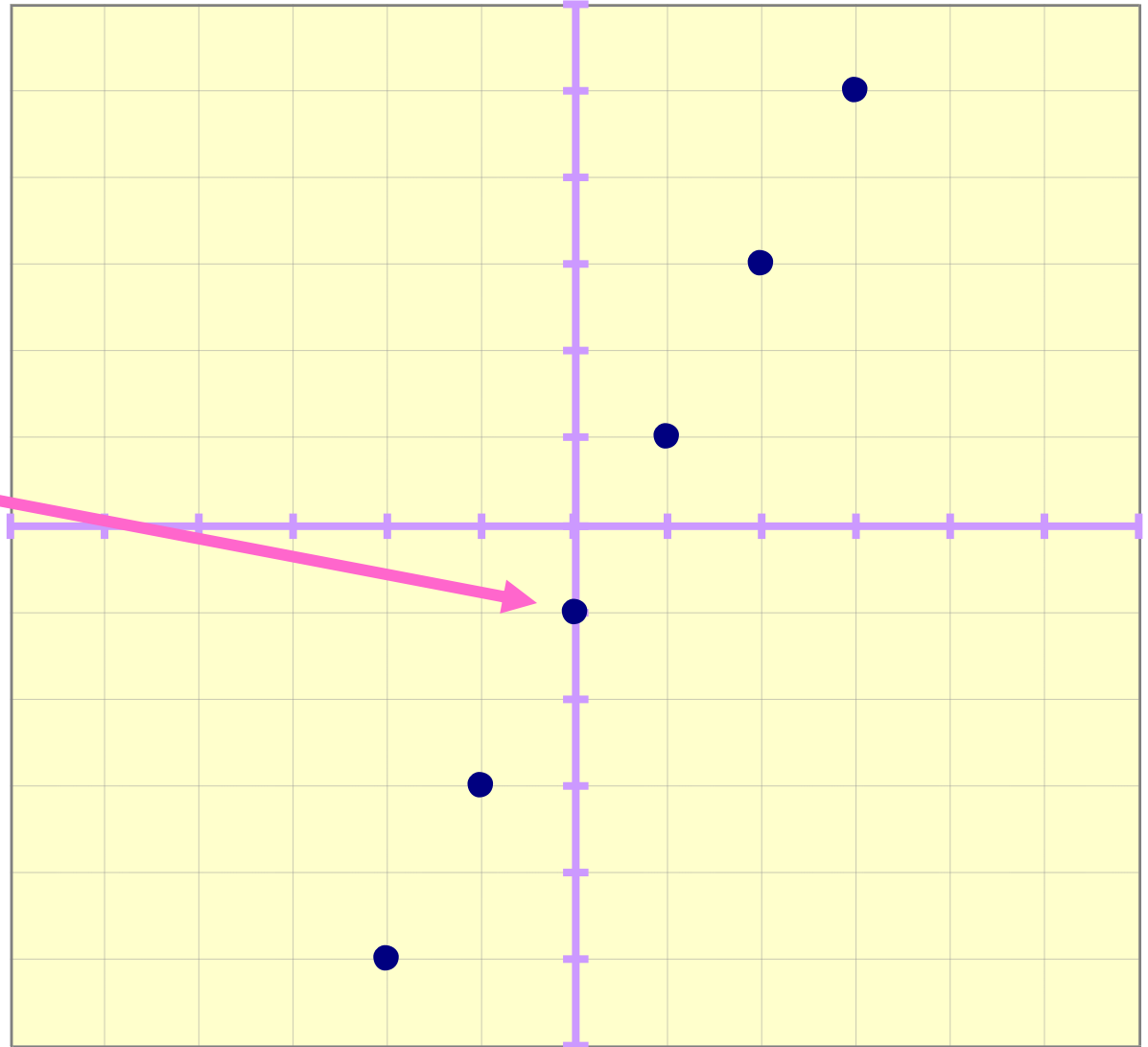
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0	-1
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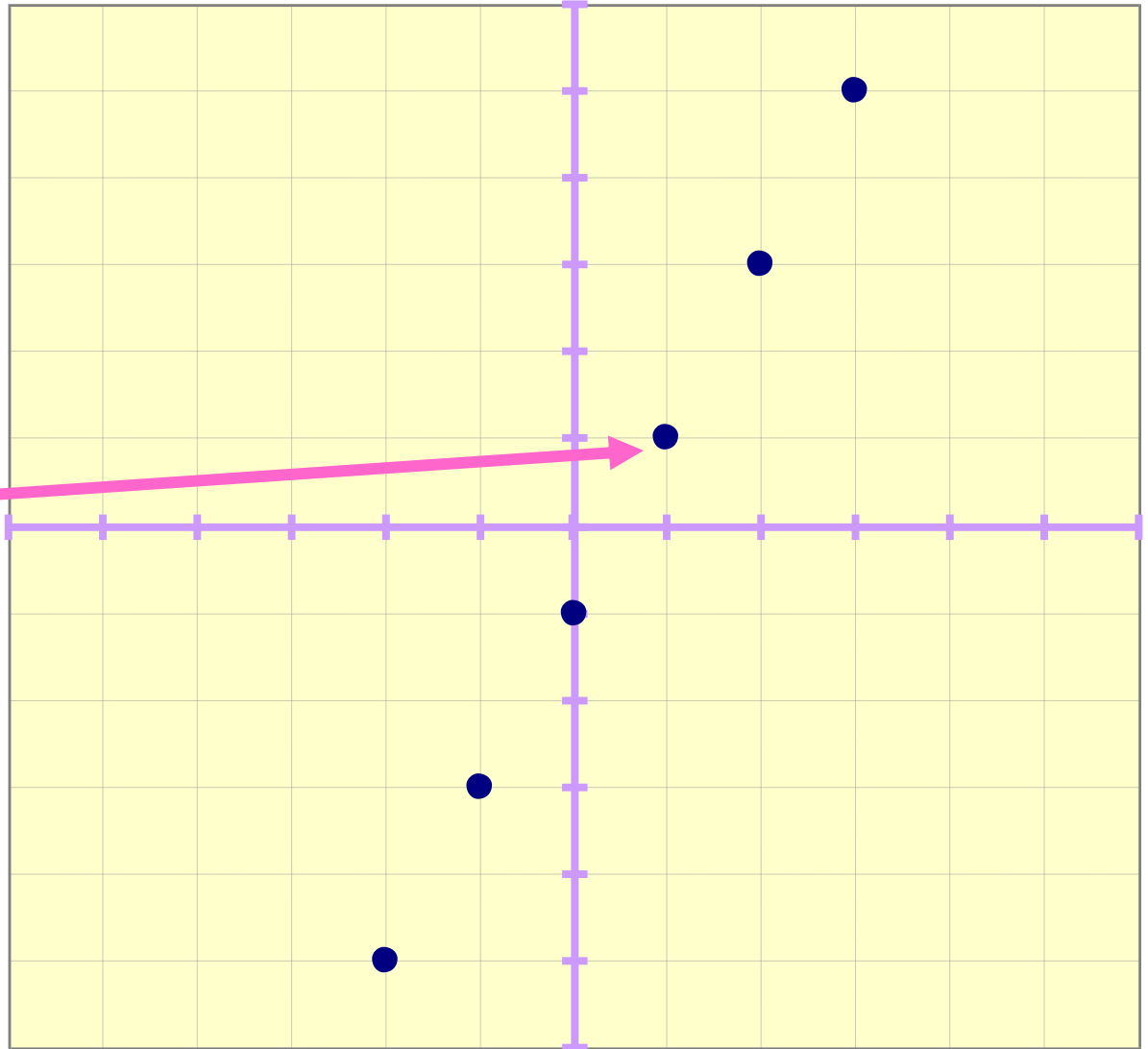
x	y
-2	-5
-1	-3
0	-1
1	1
2	3
3	5





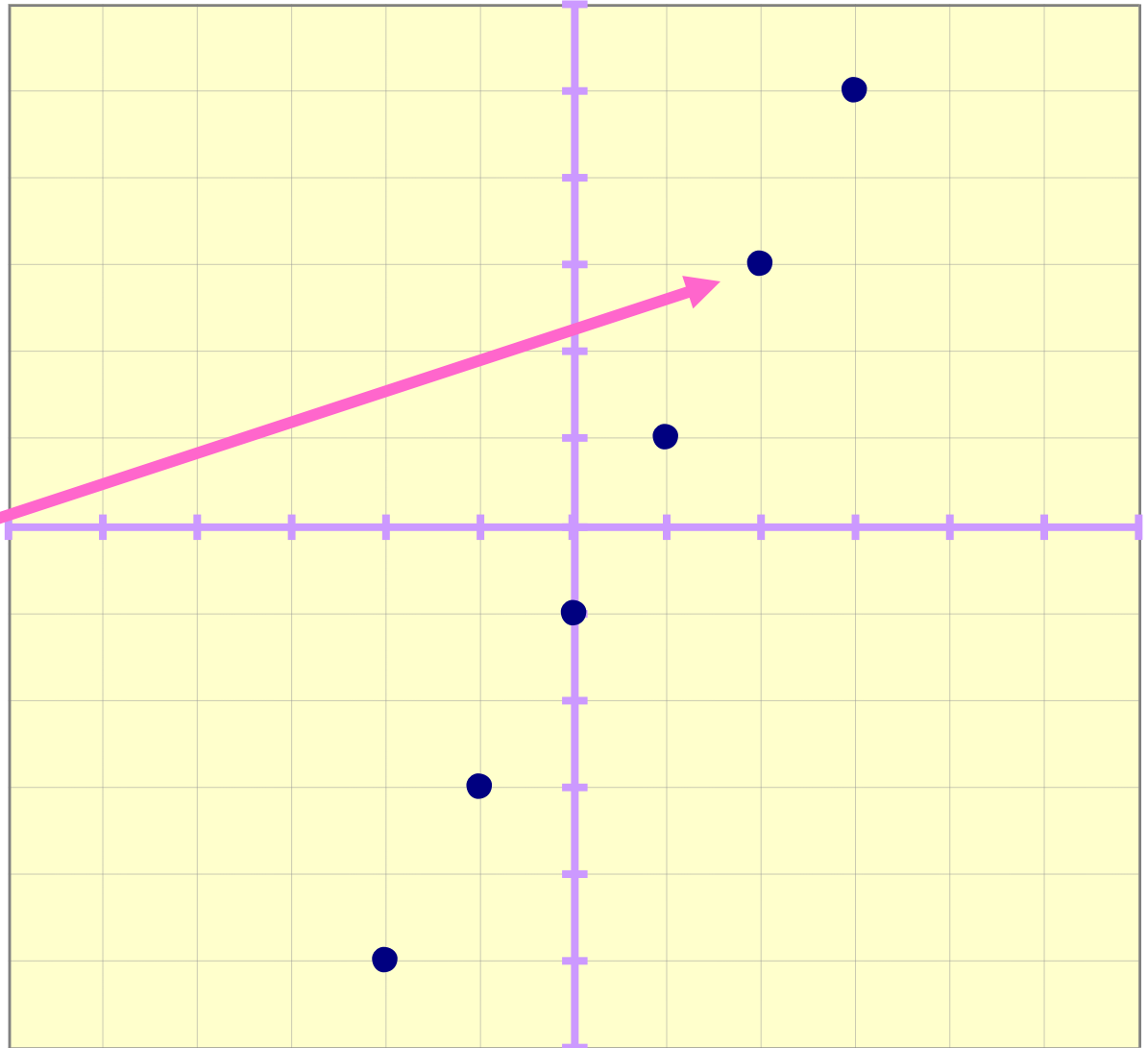
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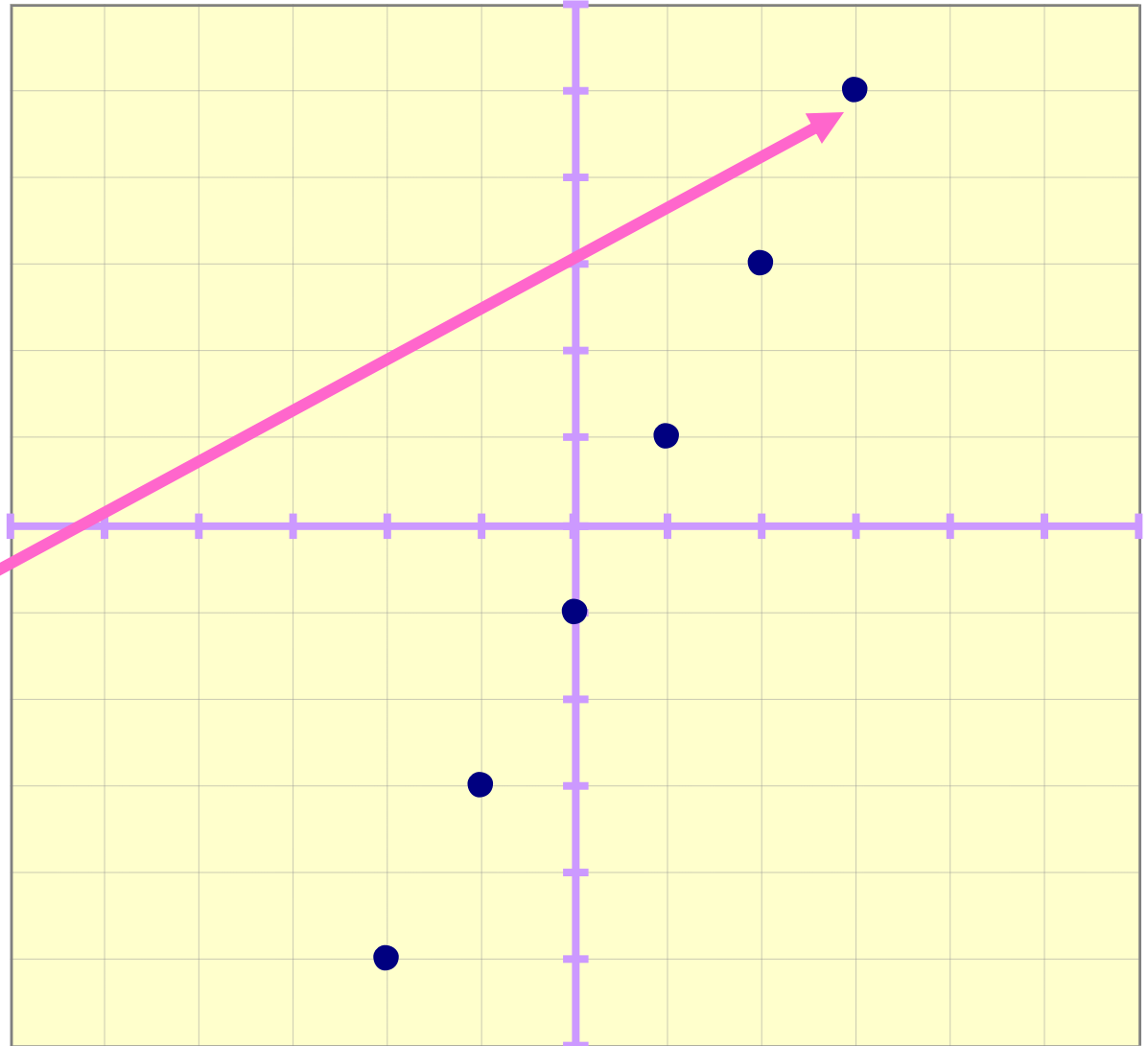
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-2	-5
-1	-3
0	-1
1	1
2	3
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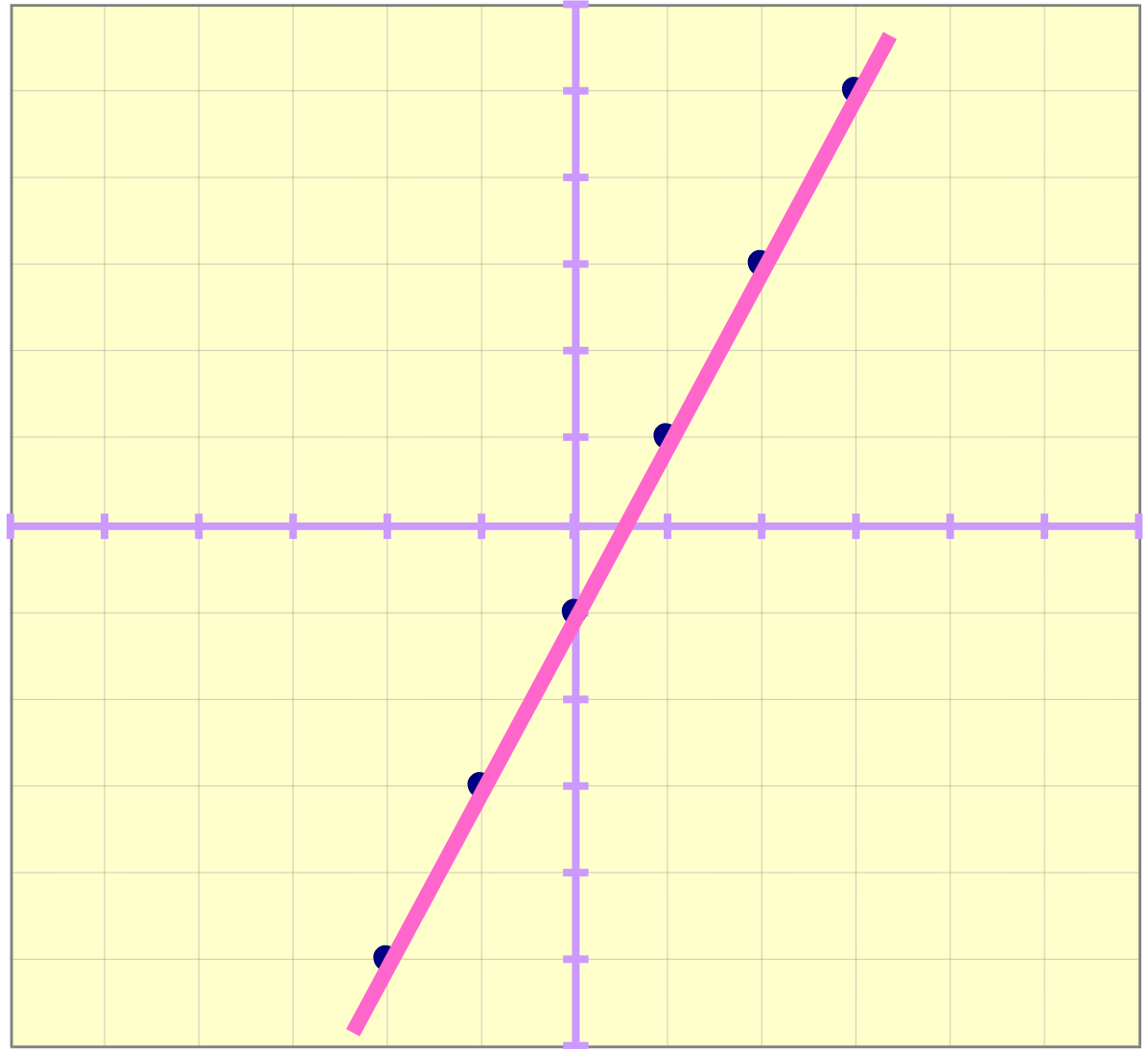
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$$y = 2x - 1$$

x	y
-2	-5
-1	-3
0	-1
1	1
2	3
3	5



**RETTE NEL PIANO  
CARTESIANO  
NON PARALLELA  
ALL'ASSE  $y$**



**EQUAZIONE DEL TIPO:**

$$y = mx + q$$

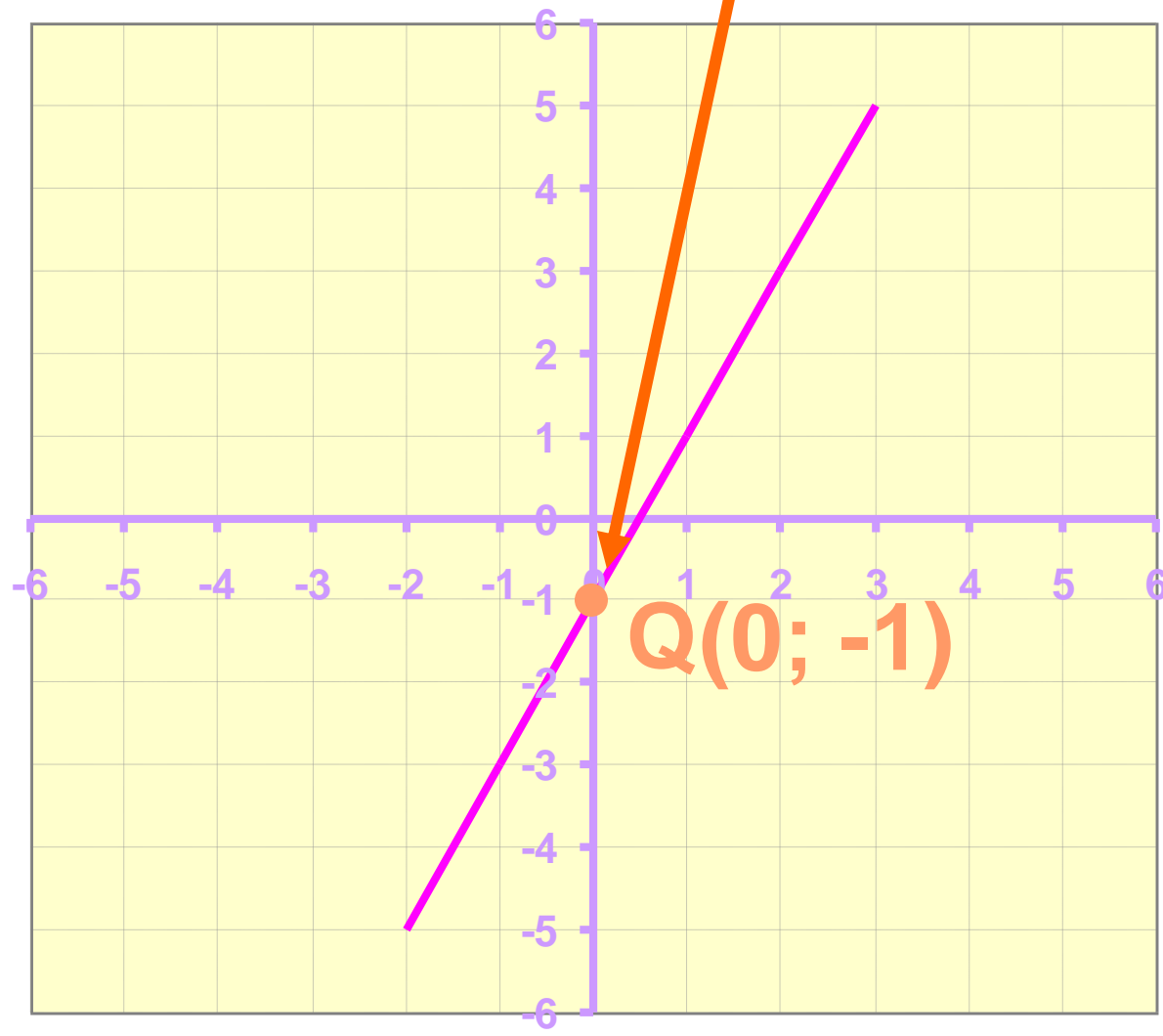
$$y = m x + q$$

**coefficiente  
angolare o  
pendenza**

**ordinata  
all'origine**

$$y = mx + q$$

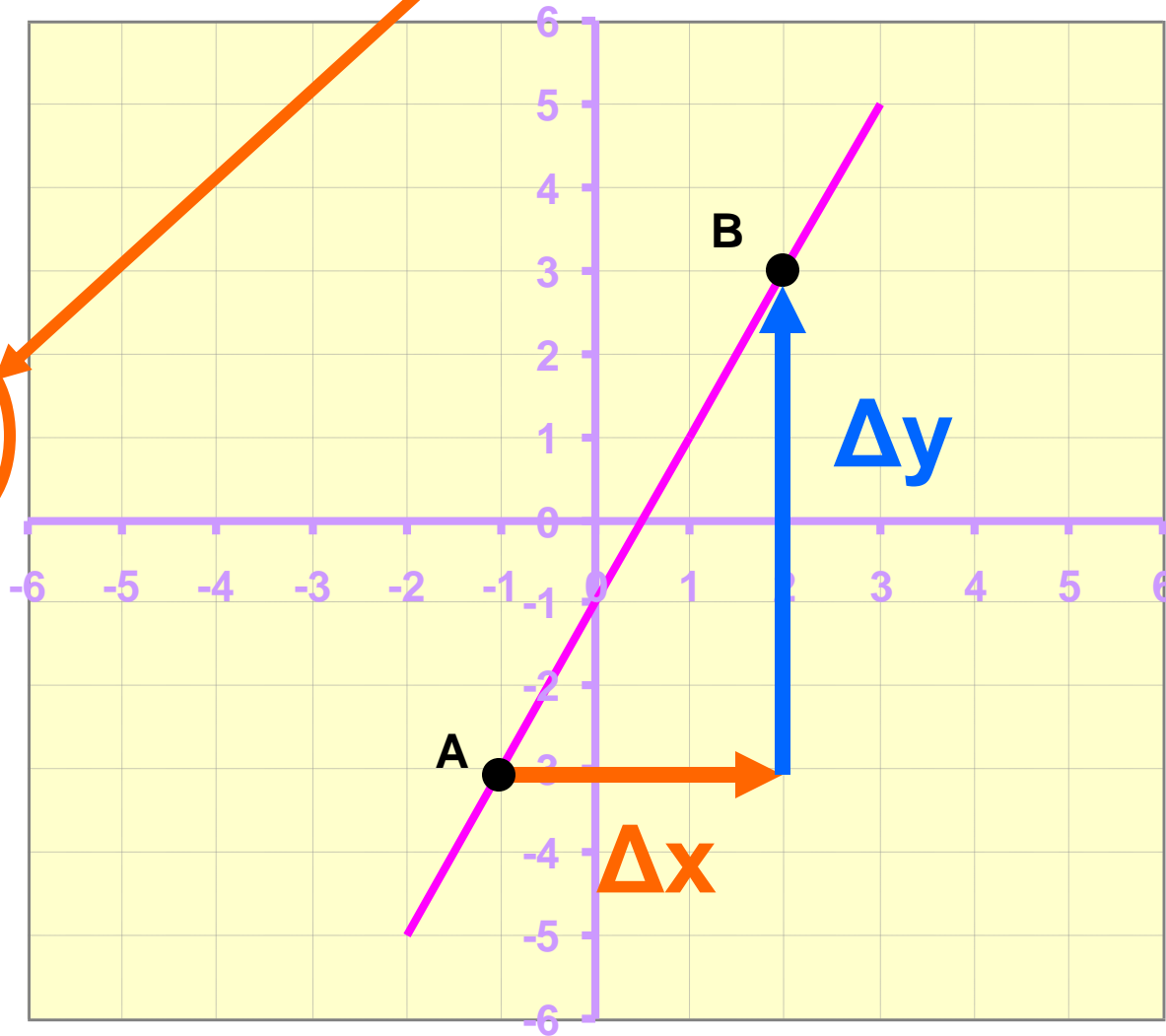
$$y = 2x - 1$$





$$y = 2x - 1$$

$$\frac{\Delta y}{\Delta x} = 2$$



**COME  
COSTRUIRE IL  
GRAFICO DI UNA  
FUNZIONE  
LINEARE**

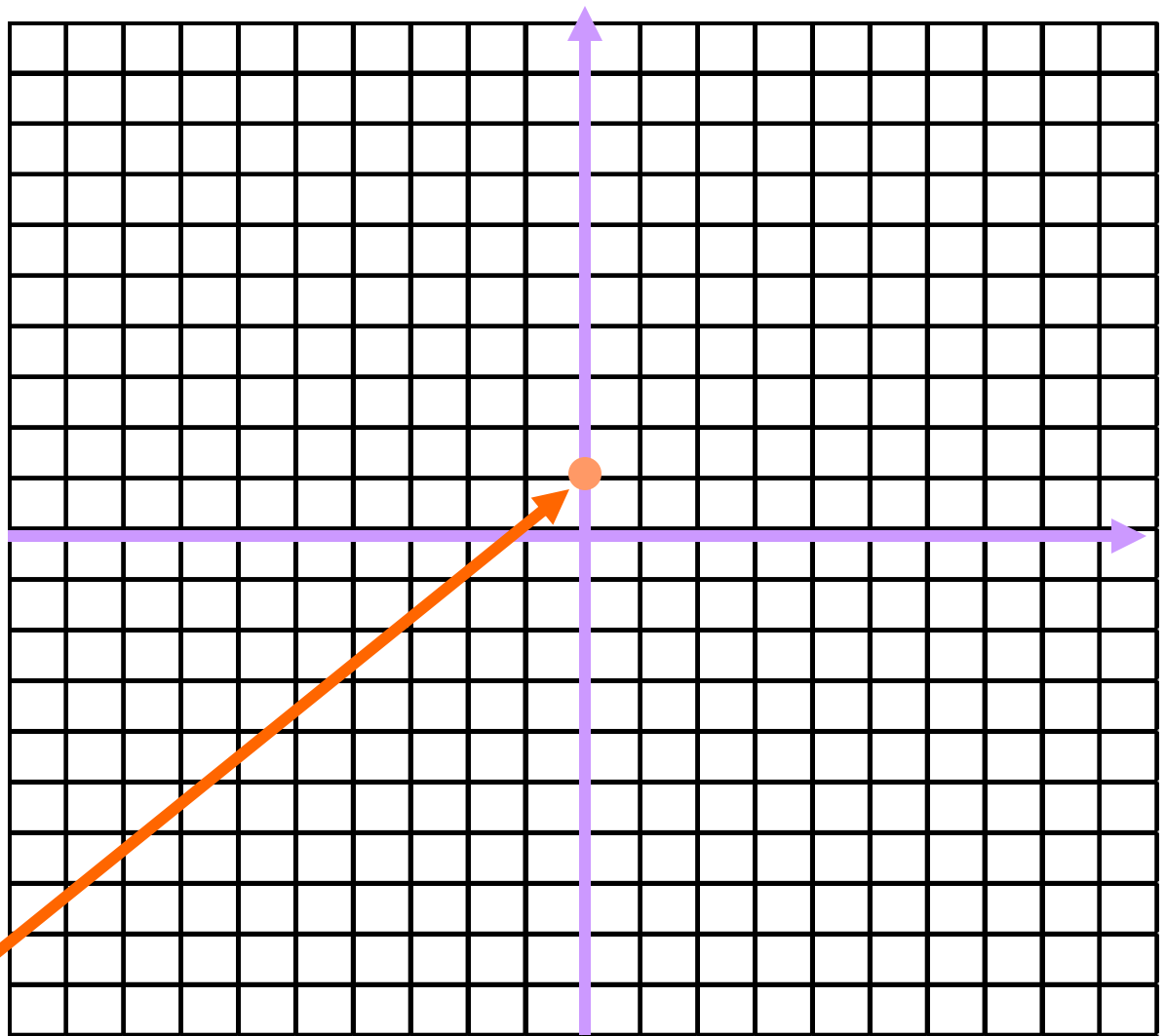
# Esempio 1

$$y = 3x + 1$$

$$q = 1$$

la retta  
passa per

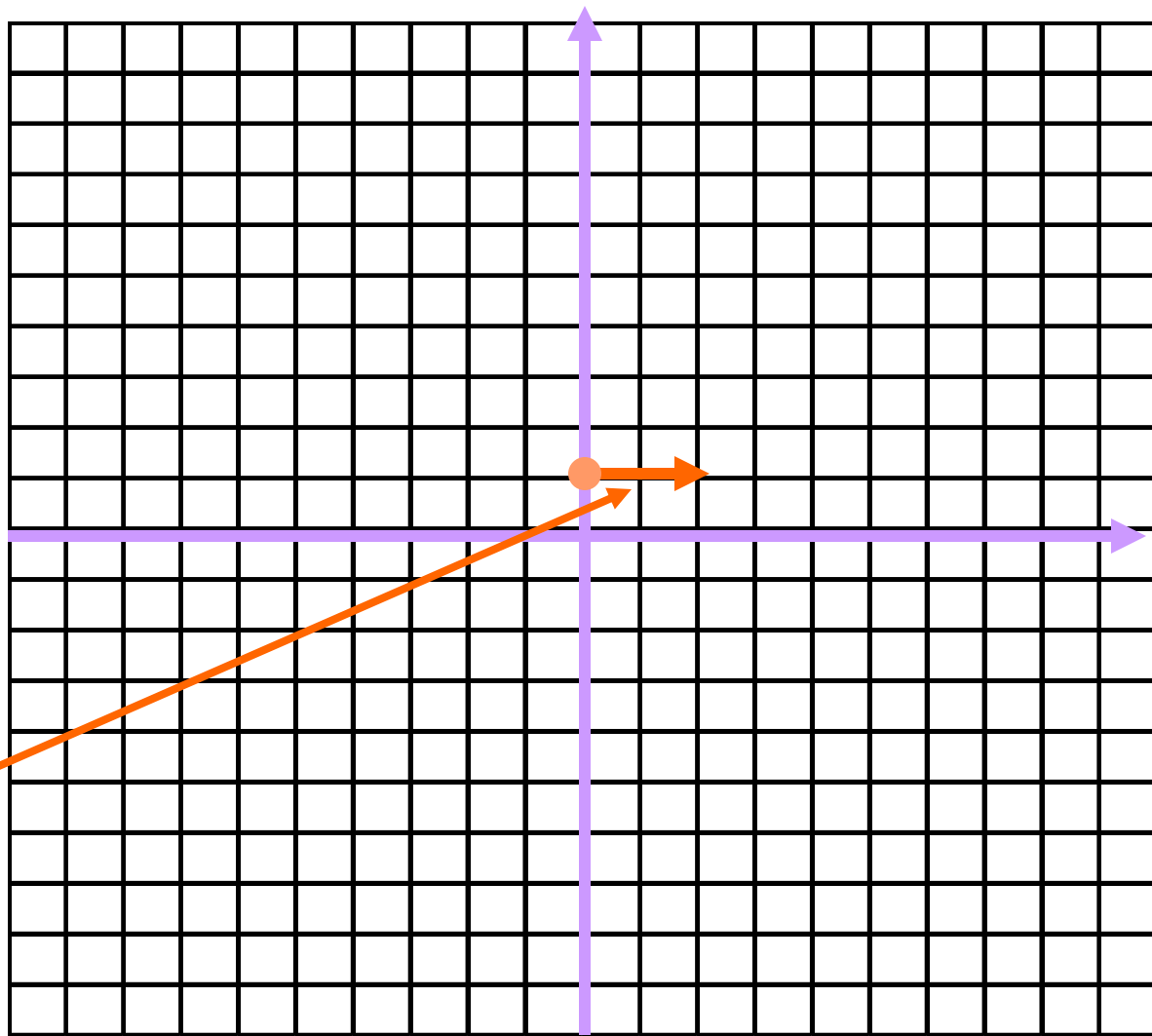
$$Q(0; 1)$$



$$y = 3x + 1$$

$$m=3$$

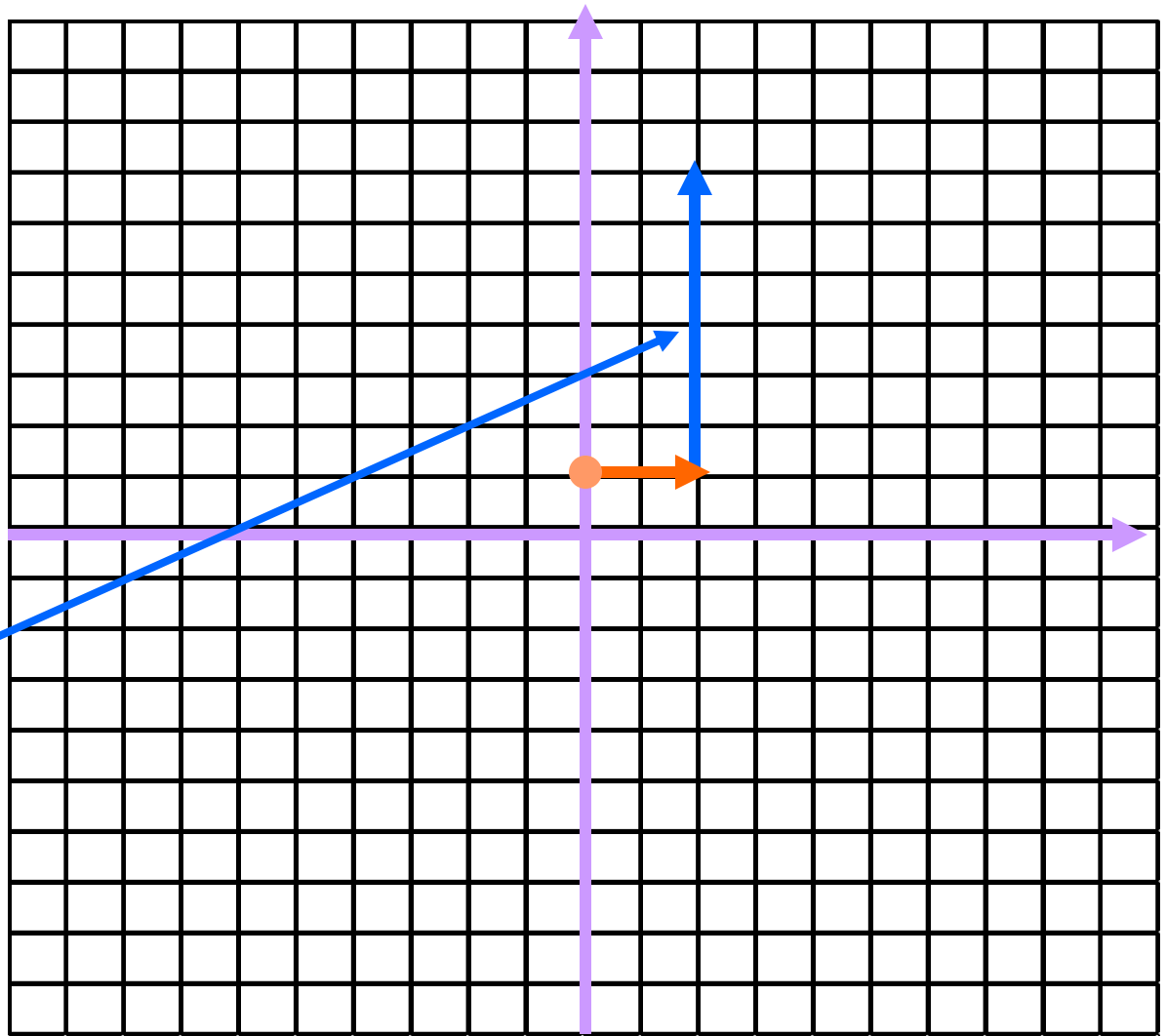
$$\Delta y = 3\Delta x$$



$$y = 3x + 1$$

$$m=3$$

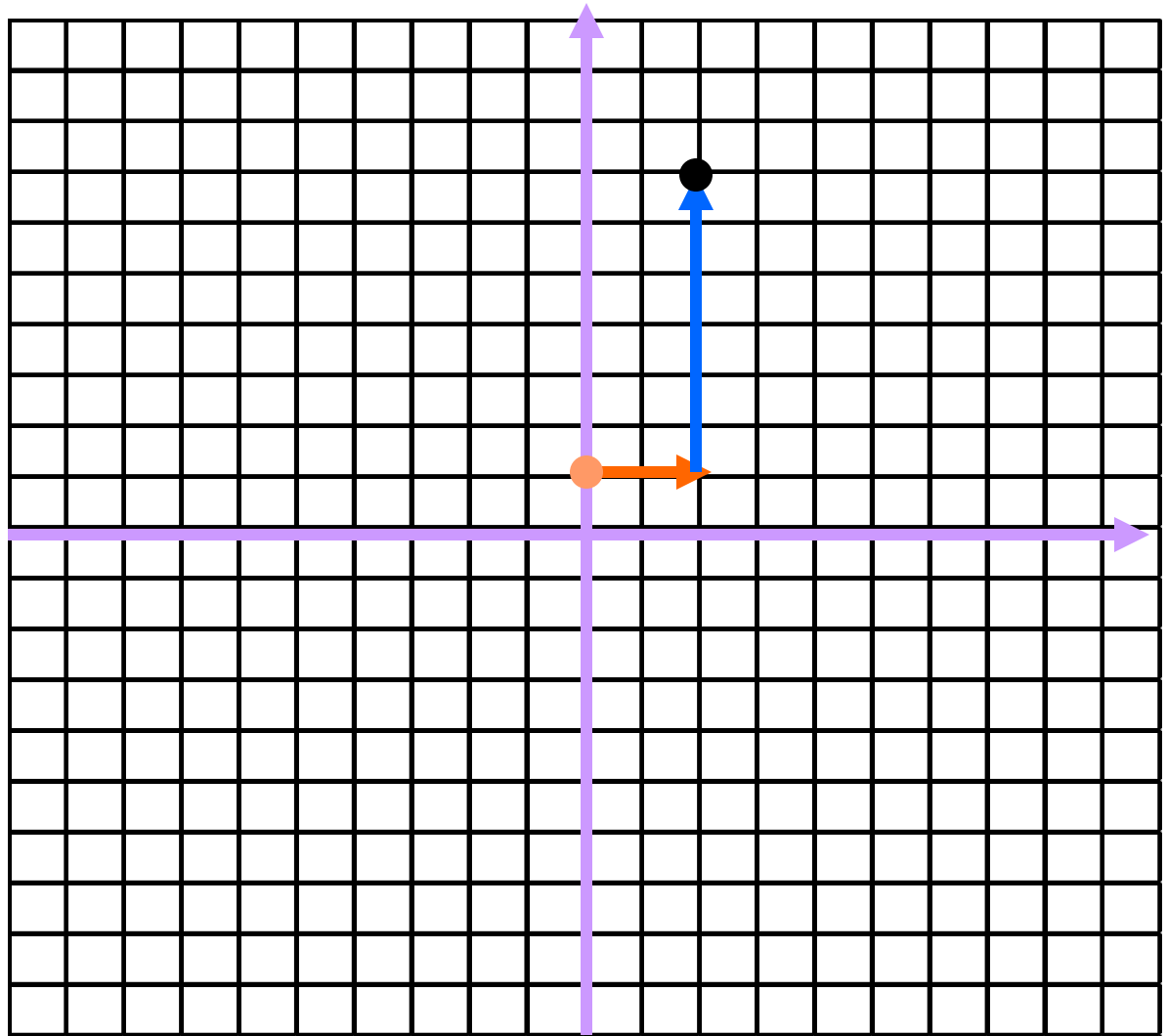
$$\Delta y = 3\Delta x$$



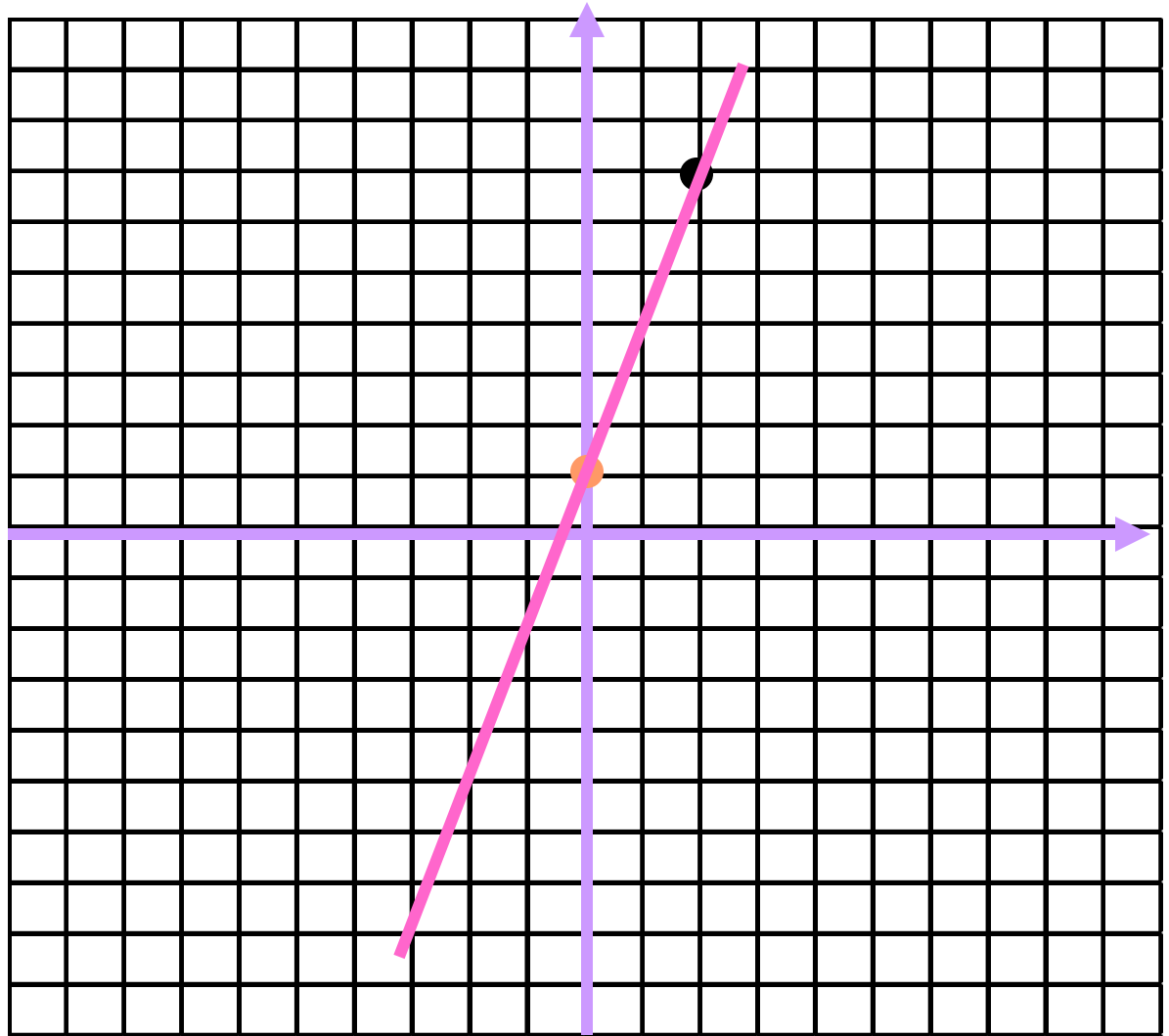
$$y = 3x + 1$$

$$m=3$$

$$\Delta y = 3\Delta x$$



$$y = 3x + 1$$





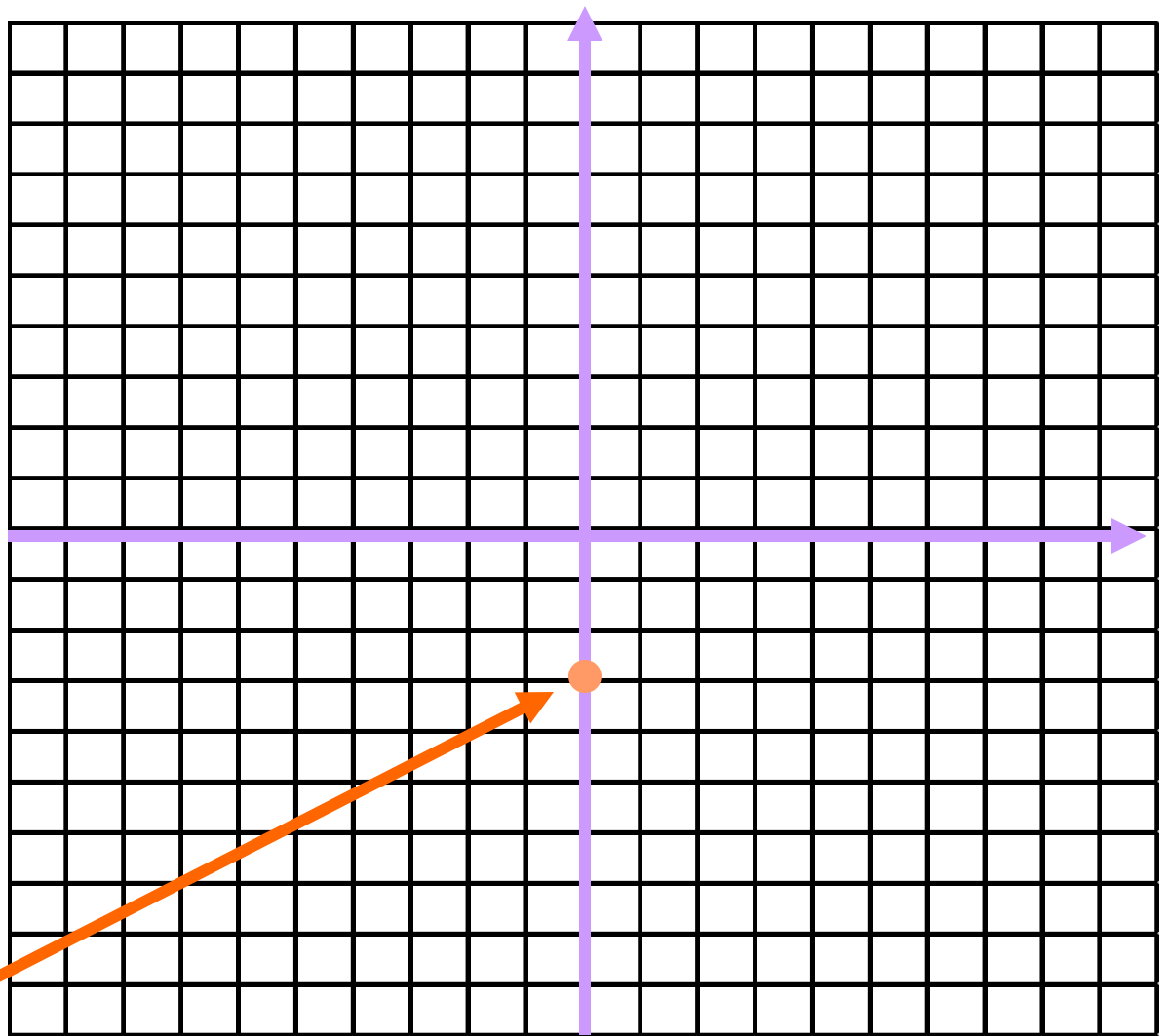
# Esempio 2

$$y = -1/2x - 3$$

$$q = -3$$

la retta  
passa per

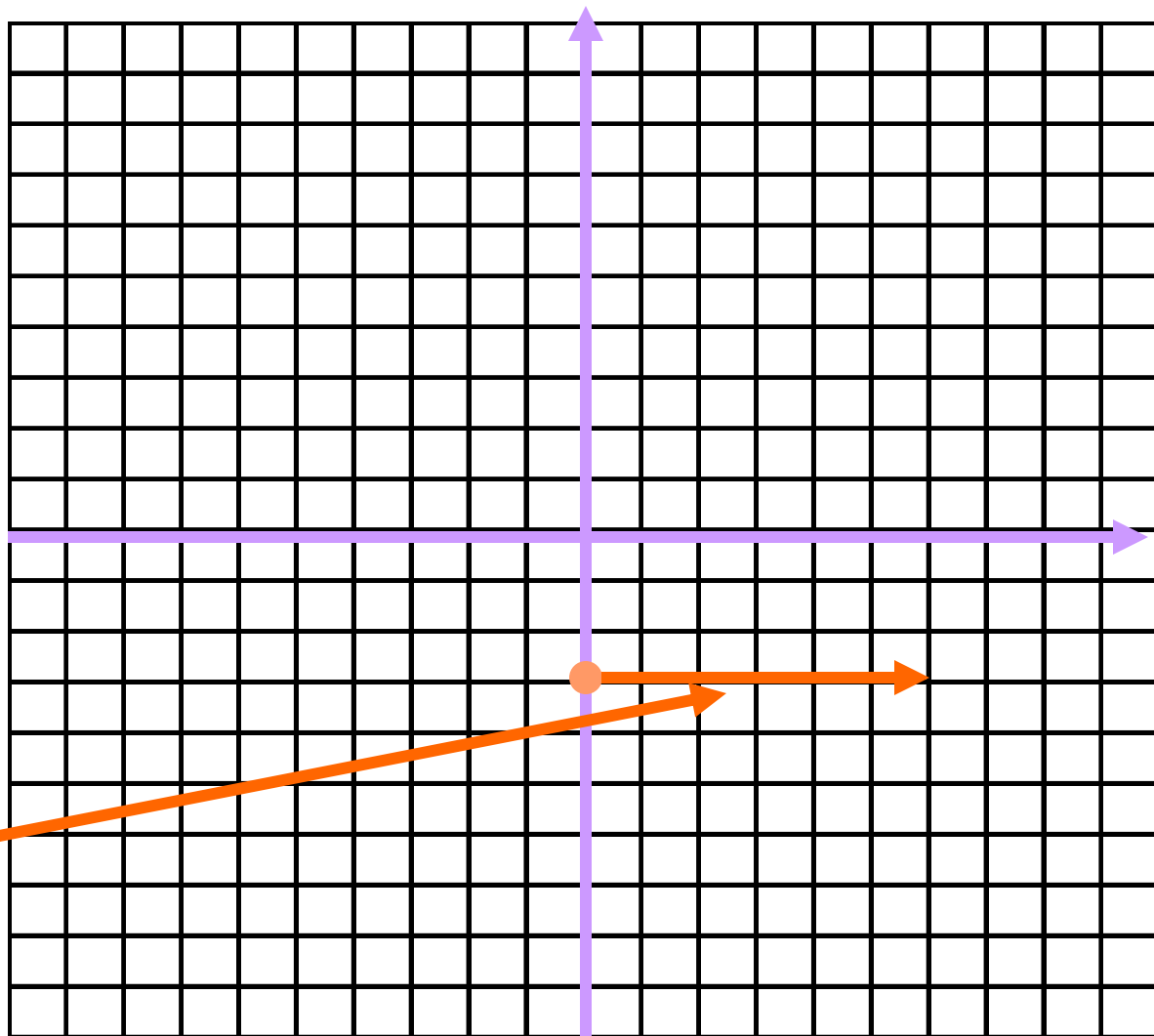
$$Q(0; -3)$$



$$y = -\frac{1}{2}x - 3$$

$$m = -\frac{1}{2}$$

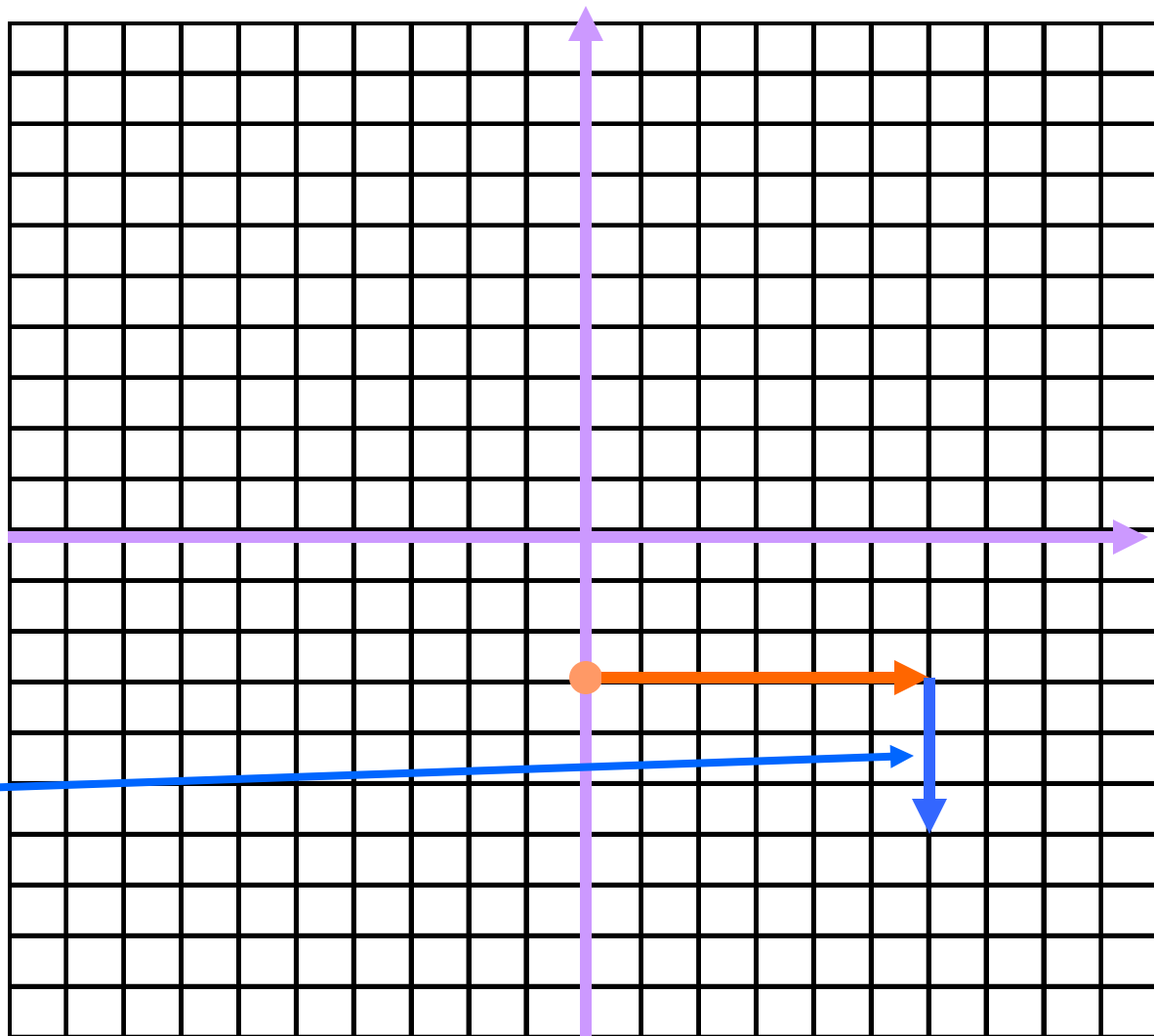
$$\Delta y = -\frac{1}{2} \Delta x$$



$$y = -\frac{1}{2}x - 3$$

$$m = -\frac{1}{2}$$

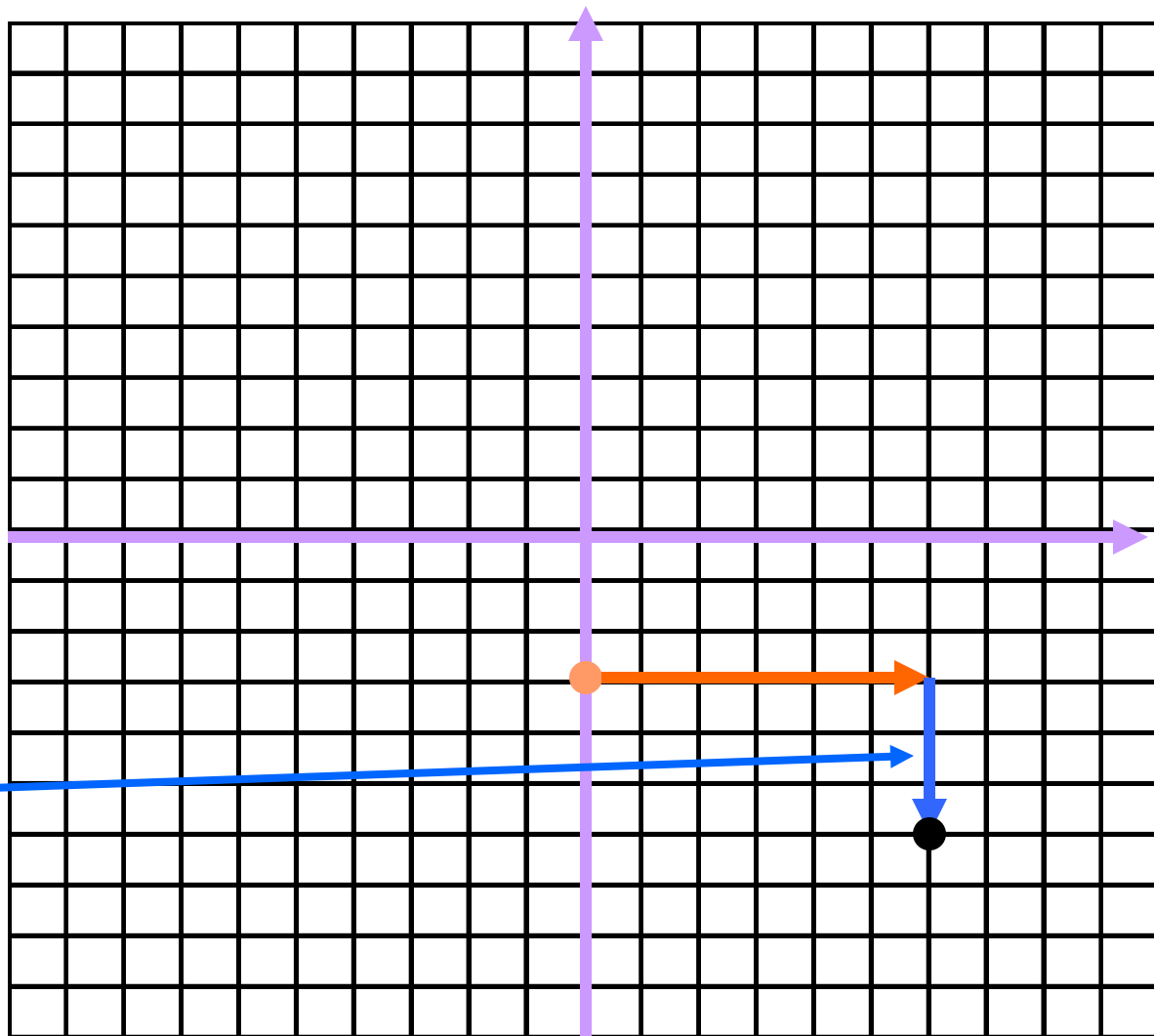
$$\Delta y = -\frac{1}{2} \Delta x$$



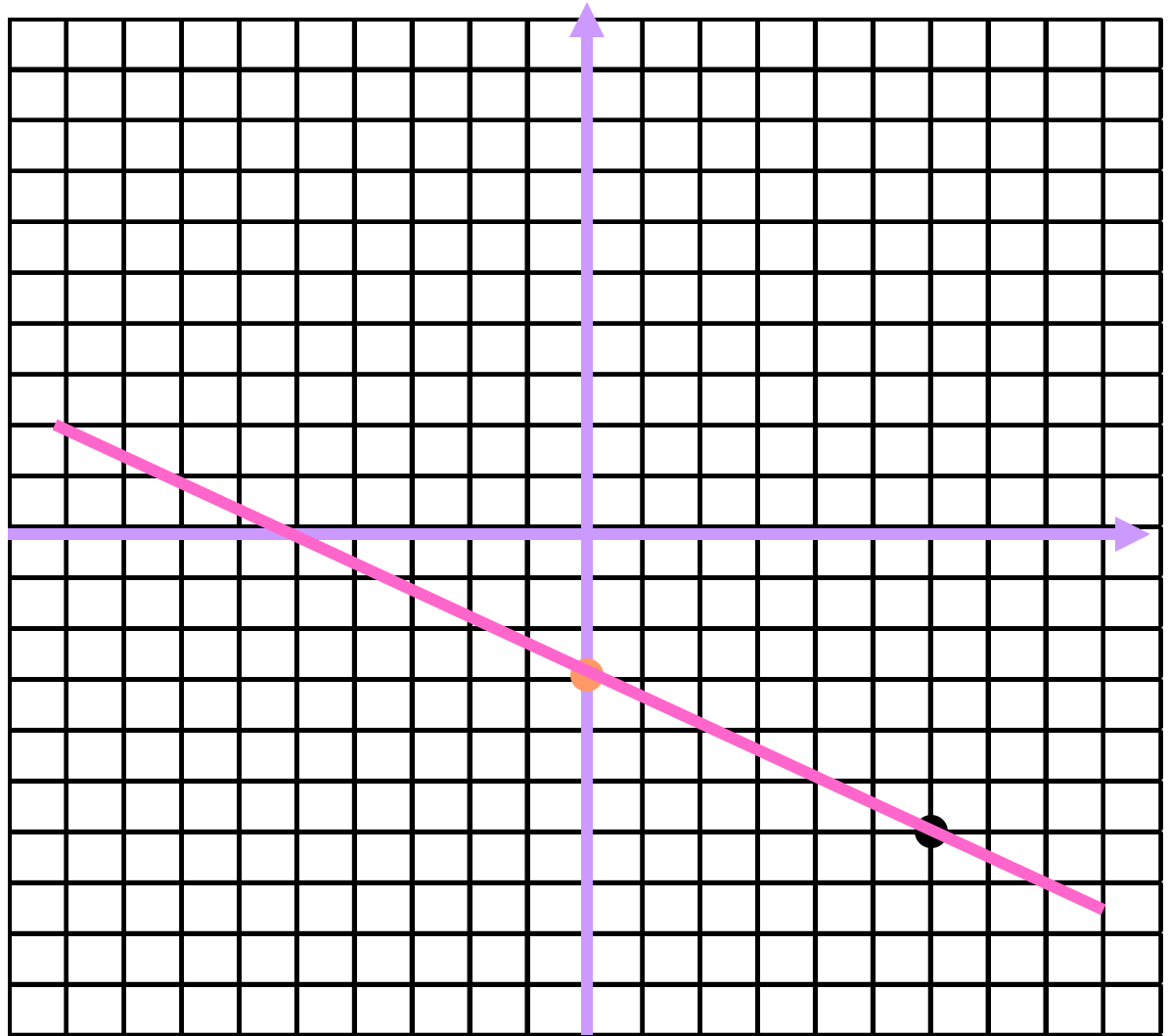
$$y = -\frac{1}{2}x - 3$$

$$m = -\frac{1}{2}$$

$$\Delta y = -\frac{1}{2} \Delta x$$




$$y = -\frac{1}{2}x - 3$$



**COME  
DETERMINARE  
L'EQUAZIONE DI  
UNA RETTA  
PASSANTE PER DUE  
PUNTI DATI**

A(-2; 4)

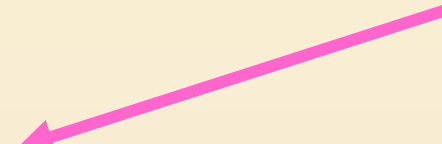
B(3; -1)

$$m = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$




A(-2; 4)

B(3; -1)

$$m = \frac{\Delta y}{\Delta x} = \frac{-1 - y_1}{x_2 - x_1}$$


A(-2; 4)

B(3; -1)

$$m = \frac{\Delta y}{\Delta x} = \frac{-1 - y_1}{x_2 - x_1}$$


A(-2; 4)

B(3; -1)

$$m = \frac{\Delta y}{\Delta x} = \frac{-1 - 4}{x_2 - x_1}$$

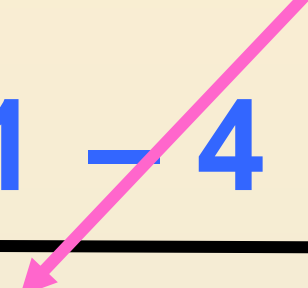
A(-2; 4)

B(3; -1)

$$m = \frac{\Delta y}{\Delta x} = \frac{-1 - 4}{x_2 - x_1}$$


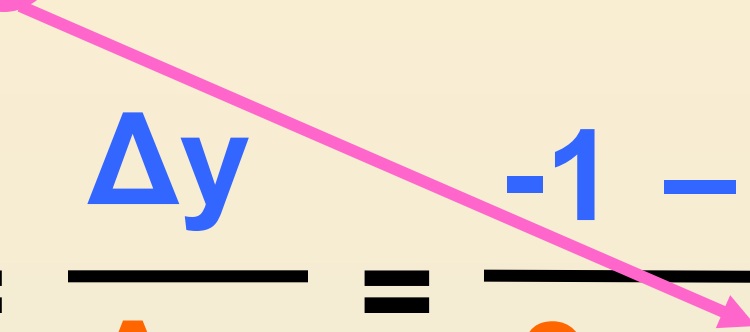
A(-2; 4)

B(3; -1)

$$m = \frac{\Delta y}{\Delta x} = \frac{-1 - 4}{3 - x_1}$$


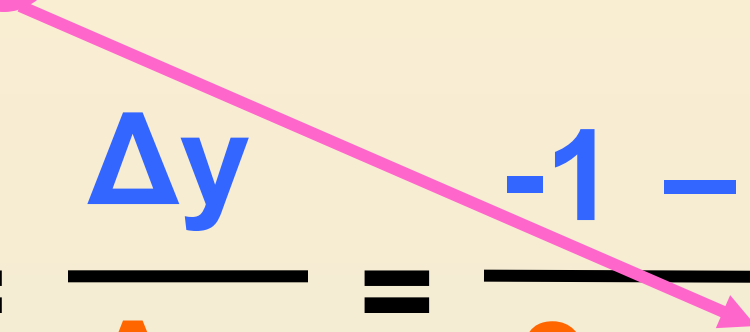
A(-2; 4)

B(3; -1)

$$m = \frac{\Delta y}{\Delta x} = \frac{-1 - 4}{3 - x_1}$$


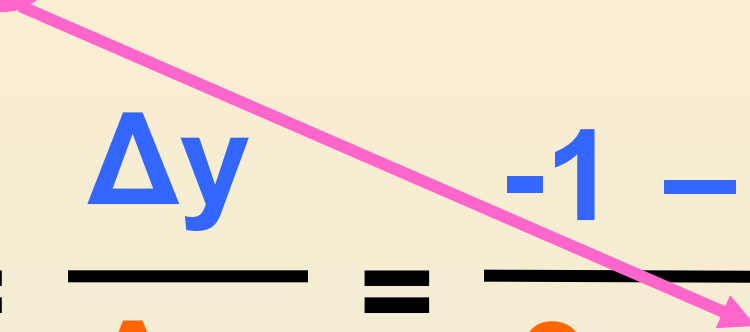
A(-2; 4)

B(3; -1)

$$m = \frac{\Delta y}{\Delta x} = \frac{-1 - 4}{3 - (-2)}$$


A(-2; 4)

B(3; -1)

$$m = \frac{\Delta y}{\Delta x} = \frac{-1 - 4}{3 + 2}$$




A(-2; 4)

B(3; -1)

$$m = \frac{\Delta y}{\Delta x} = \frac{-1 - 4}{3 + 2} = -1$$

A(-2; 4)

B(3; -1)

**l'equazione della retta  
passante per A e B è del tipo:**

$$y = mX + q$$

**e sappiamo che  $m = -1$**

A(-2; 4)

B(3; -1)

l'equazione della retta  
passante per A e B è del tipo:

$$y = -1x + q$$

e sappiamo che  $m = -1$

$$A(-2; 4)$$

$$B(3; -1)$$

**l'equazione della retta  
passante per A e B è del tipo:**

$$y = -x + q$$

**e sappiamo che  $m = -1$**

A(-2; 4)

B(3; -1)

Per determinare  $q$ :

$$y = -x + q$$

A(-2; 4)

B(3; -1)

Per determinare  $q$ :

$$y = -(-2) + q$$

A(-2; 4)

B(3; -1)

Per determinare  $q$ :

$$y = -(-2) + q$$

A(-2; 4)

B(3; -1)

Per determinare  $q$ :

$$y = 2 + q$$



A(-2; 4)

B(3; -1)

Per determinare  $q$ :

$$y = 2 + q$$

A(-2; 4)

B(3; -1)

Per determinare  $q$ :


$$4 = 2 + q$$

A(-2; 4)

B(3; -1)

Per determinare  $q$ :

$$4 = 2 + q$$


$$q = 2$$

**A(-2; 4)**

**B(3; -1)**

**quindi l'equazione della retta  
passante per A e B è:**

$$y = -x + 2$$