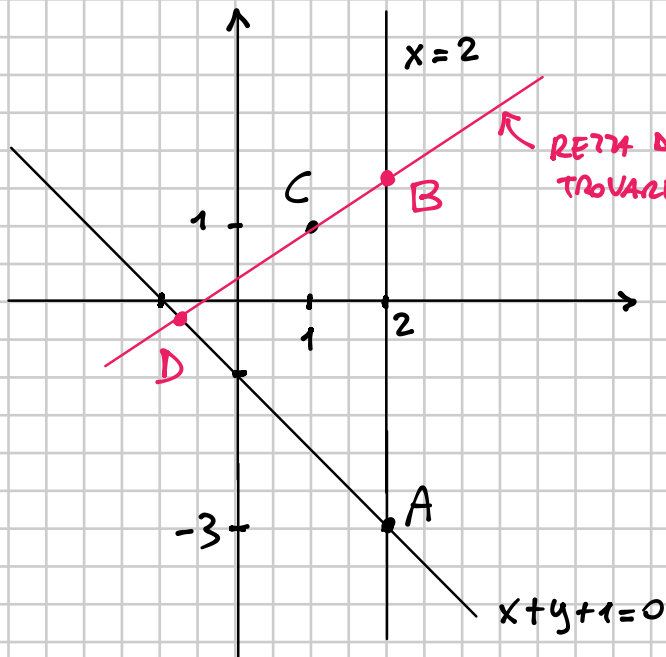


Scrivi l'equazione della retta appartenente al fascio proprio di rette di centro $(1; 1)$ che forma con le rette $\bar{x} + y + 1 = 0$ e $x = 2$ un triangolo di area 2.

$$[y = -2x + 3; y = -10x + 11]$$

Fascio di centro $C(1, 1) \rightarrow y - 1 = m(x - 1)$



$$x + y + 1 = 0 \quad y = -x - 1$$

$$A = \begin{cases} x = 2 \\ x + y + 1 = 0 \end{cases} \quad \begin{cases} x = 2 \\ 2 + y + 1 = 0 \end{cases}$$

$$\begin{cases} x = 2 \\ y = -3 \end{cases} \quad A(2, -3)$$

$$\text{Area}_{ABD} = 2$$

$$B = \begin{cases} x = 2 \\ y - 1 = m(x - 1) \end{cases} \quad \begin{cases} x = 2 \\ y - 1 = m(2 - 1) \end{cases} \quad \begin{cases} x = 2 \\ y = m + 1 \end{cases} \quad B(2, m + 1)$$

$$D = \begin{cases} x + y + 1 = 0 \\ y - 1 = m(x - 1) \end{cases} \quad \begin{cases} y = -x - 1 \\ -x - 1 - 1 = m(x - 1) \end{cases} \quad \begin{cases} y = -x - 1 \\ -x - 2 = mx - m \end{cases}$$

$$\begin{cases} y = -x - 1 \\ mx + x = m - 2 \end{cases} \quad \begin{cases} // \\ x(m + 1) = m - 2 \end{cases} \quad \begin{cases} y = -\frac{m - 2}{m + 1} - 1 \\ x = \frac{m - 2}{m + 1} \end{cases}$$

$m \neq -1$ (se fosse $m = -1$ la retta del fascio sarebbe $\parallel y = -x - 1$)

$$\begin{cases} x = \frac{m - 2}{m + 1} \\ y = \frac{-m + 2 - m - 1}{m + 1} = \frac{1 - 2m}{m + 1} \end{cases}$$

$$D\left(\frac{m - 2}{m + 1}, \frac{1 - 2m}{m + 1}\right)$$

$$A(2, -3) \quad B(2, m+1) \quad D\left(\frac{m-2}{m+1}, \frac{1-2m}{m+1}\right)$$

$$\overline{AB} = |y_B - y_A| = |m+1+3| = |m+4|$$

Altera $h = d(D, \text{retta } x=2) = \frac{|ax_0 + by_0 + c|}{\sqrt{a^2 + b^2}}$

$$= \frac{\left| \frac{m-2}{m+1} - 2 \right|}{\sqrt{1^2 + 0^2}} = \left| \frac{m-2}{m+1} - 2 \right| = \left| \frac{m-2-2m-2}{m+1} \right| = \left| \frac{-m-4}{m+1} \right|$$

$$\text{Area} = 2 \Rightarrow \frac{1}{2} |m+4| \cdot \left| \frac{m+4}{m+1} \right| = 2 \quad m \neq -1$$

$$\frac{|m+4| \cdot |m+4|}{|m+1|} = 4$$

$$(m+4)^2 = 4|m+1|$$

$$\begin{cases} |f(x)| = g(x) \\ \downarrow \\ \begin{cases} g(x) \geq 0 \\ f(x) = \pm g(x) \end{cases} \end{cases}$$

$$(m+4)^2 = 4(m+1) \quad \vee \quad (m+4)^2 = -4(m+1)$$

$$m^2 + 8m + 16 = 4m + 4$$

$$m^2 + 8m + 16 = -4m - 4$$

$$m^2 + 4m + 12 = 0$$

$$m^2 + 12m + 20 = 0$$

$$\frac{\Delta}{4} = 4 - 12 < 0 \text{ IMPOSS.}$$

$$\frac{\Delta}{4} = 36 - 20 = 16$$

$$m = -6 \pm 4 = \begin{cases} -10 \\ -2 \end{cases}$$

Per trovare le rette sottilenisc
gli m nell'equazione del fascio
 $y-1 = m(x-1)$

$$m = -10 \quad y-1 = -10x+10$$

$$\boxed{y = -10x + 11}$$

$$m = -2 \quad y-1 = -2x+2$$

$$\boxed{y = -2x + 3}$$