

654 Scrivi l'equazione del fascio generato dalle rette  $2x + y - 1 = 0$  e  $4x + 2y + 3 = 0$  e trova:

- l'equazione della retta che passa per il punto  $P(2; 0)$ ;
- l'equazione delle rette che incontrano gli assi in due punti  $A$  e  $B$  tali che l'area del triangolo  $AOB$  sia 1;
- l'equazione della retta perpendicolare alla retta  $x - 3y - 1 = 0$ .

[a)  $2x + y - 4 = 0$ ; b)  $2x + y - 2 = 0, 2x + y + 2 = 0$ ; c) non esiste]

$$a) \quad 2x + y - 1 + K(4x + 2y + 3) = 0$$

$$P(2, 0) \quad 2 \cdot 2 + 0 - 1 + K(4 \cdot 2 + 2 \cdot 0 + 3) = 0$$

$$4 - 1 + K \cdot 11 = 0 \quad K = -\frac{3}{11}$$

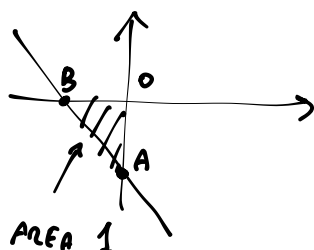
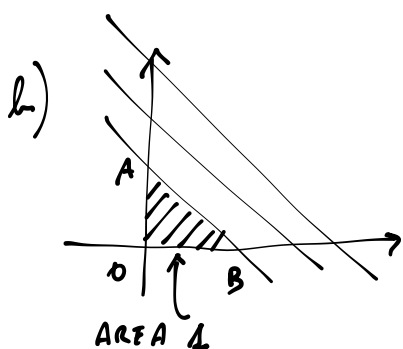
$$2x + y - 1 - \frac{3}{11}(4x + 2y + 3) = 0$$

$$2x + y - 1 - \frac{12}{11}x - \frac{6}{11}y - \frac{9}{11} = 0$$

$$22x + 11y - 11 - 12x - 6y - 9 = 0$$

$$10x + 5y - 20 = 0$$

$$2x + y - 4 = 0$$



$$A \rightarrow \begin{cases} 2x + y - 1 + K(4x + 2y + 3) = 0 \\ x = 0 \end{cases}$$

$$A \rightarrow \begin{cases} y - 1 + K(2y + 3) = 0 \\ x = 0 \end{cases}$$

$$\begin{cases} y - 1 + 2Ky + 3K = 0 \\ x = 0 \end{cases} \quad \begin{cases} y(1 + 2K) = 1 - 3K \\ x = 0 \end{cases} \quad \begin{cases} y = \frac{1 - 3K}{1 + 2K} \\ x = 0 \end{cases}$$

$$A \left( 0, \frac{1 - 3K}{1 + 2K} \right)$$

$$B \rightarrow \begin{cases} 2x + y - 1 + K(4x + 2y + 3) = 0 \\ y = 0 \end{cases}$$

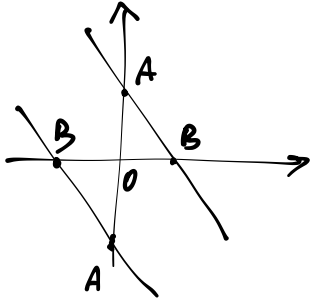
$$\begin{cases} 2x - 1 + K(4x + 3) = 0 \\ y = 0 \end{cases} \quad \begin{cases} 2x - 1 + 4Kx + 3K = 0 \\ y = 0 \end{cases} \quad \begin{cases} x(2 + 4K) = 1 - 3K \\ y = 0 \end{cases}$$

$$B \left( \frac{1 - 3K}{2 + 4K}, 0 \right)$$

$$A \left( 0, \frac{1-3K}{1+2K} \right)$$

$$B \left( \frac{1-3K}{2+4K}, 0 \right)$$

$$\text{Area}_{AOB} = \frac{1}{2} \overline{OA} \cdot \overline{OB} = \frac{1}{2} \left| \frac{1-3K}{1+2K} \right| \left| \frac{1-3K}{2+4K} \right|$$



$$\frac{1}{2} \left| \frac{1-3K}{1+2K} \right| \left| \frac{1-3K}{2(1+2K)} \right| = 1$$

$$\underbrace{\frac{1}{2} \left| \frac{1-3K}{1+2K} \right| \left| \frac{1-3K}{2(1+2K)} \right|}_{\text{Area}_{AOB}} = 1$$

$$\frac{1}{4} \left( \frac{1-3K}{1+2K} \right)^2 = 1$$

$$(1-3K)^2 = 4(1+2K)^2$$

$$1-3K = 2(1+2K)$$

$$1-3K = 2+4K$$

$$-7K = 1$$

$$K = -\frac{1}{7}$$

✓

$$1-3K = -2(1+2K)$$

$$1-3K = -2-4K$$

$$K = -3$$

$$2x + y - 1 + K(4x + 2y + 3) = 0$$

$$2x + y - 1 - \frac{1}{7}(4x + 2y + 3) = 0$$

$$2x + y - 1 - \frac{4}{7}x - \frac{2}{7}y - \frac{3}{7} = 0$$

$$10x + 5y - 10 = 0$$

$$\boxed{2x + y - 2 = 0}$$

$$2x + y - 1 - 3(4x + 2y + 3) = 0$$

$$2x + y - 1 - 12x - 6y - 9 = 0$$

$$-10x - 5y - 10 = 0$$

$$\boxed{2x + y + 2 = 0}$$

$$2x + y - 1 + k(4x + 2y + 3) = 0$$

$$\perp x - 3y - 1 = 0$$

$$2x + y - 1 + 4kx + 2ky + 3k = 0$$

$$(2 + 4k)x + (1 + 2k)y + 3k - 1 = 0$$

CONDIZ.  $\perp$   
 $aa' + bb' = 0$

$$(2 + 4k) \cdot 1 + (1 + 2k)(-3) = 0$$

$$2 + 4k - 3 - 6k = 0$$

$$-2k = 1 \quad k = -\frac{1}{2}$$

$$\cancel{2x + y - 1} - \cancel{2x - y} - \frac{3}{2} = 0$$

IMPOSS.

Non ci sono PERPENDICOLARI  
 $\Delta x - 3y - 1 = 0$