$$\begin{cases} a(x-2y-1)+2y+1=0 \\ 4ax+(a-1)(y-2)=0 \end{cases}$$

$$\begin{cases} ax-2ay-a+2y+1=0 \\ 4ax+ay-2a-y+2=0 \end{cases}$$

$$\begin{cases} ax+(-2a+2)y=a-1 \\ 4ax+(a-1)y=2a-2 \end{cases}$$

$$D=\begin{vmatrix} a & -2a+2 \\ 4a & a-1 \end{vmatrix}=$$

$$=a^2-a+8a^2-8a=9a^2-9a=9a(a-1)$$

Se $D\neq 0$, cioè se $9a(a-1)\neq 0$,

ovvero se $a\neq 0 \wedge a\neq 1$ si ha:

$$D_x=\begin{vmatrix} a-1 & -2a+2 \\ 2a-2 & a-1 \end{vmatrix}=$$

$$=a^2-2a+1+4a^2-8a+4=5a^2-10a+5=$$

$= 5(a^2 - 2a + 1) = 5(a-1)^2$

$$D_y = \begin{vmatrix} a & a-1 \\ 4a & 2a-2 \end{vmatrix} =$$

$= 2a^2 - 2a - 4a^2 + 4a = -2a^2 + 2a =$

$= -2a(a-1)$

$$x = \frac{D_x}{D} = \frac{5(a-1)^2}{9a(a-1)} = \frac{5(a-1)}{9a}$$

$$y = \frac{D_y}{D} = \frac{-2a(a-1)}{9a(a-1)} = -\frac{2}{9}$$

Se $a = 0$ y he:

$D = 0$, $D_x = 5$, $D_y = 0$

$S = \emptyset$

Se $a = 1$, si ha:

$D = 0$, $D_x = 0$, $D_y = 0$

$S = \mathbb{R}$

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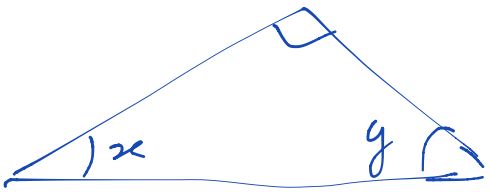
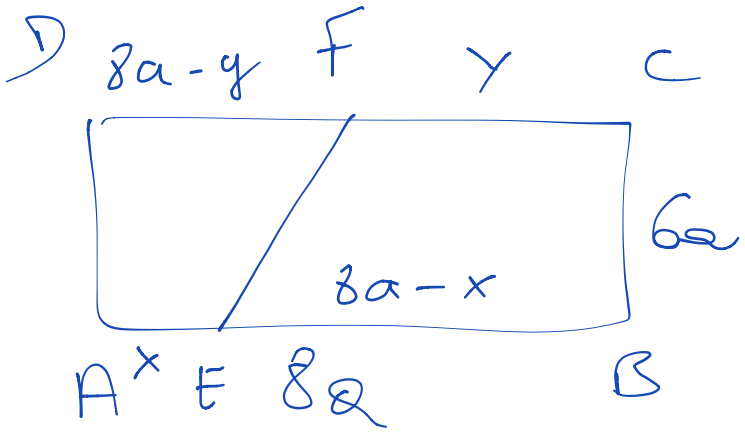


$$\begin{cases} x + \frac{3}{7}y = \frac{5}{2}x \\ x + y = 90 \end{cases}$$



$A(BCFE) = 2A(AEFD)$

$\overline{AE} = x$

$\overline{FC} = y$

$\overline{AE} + \overline{FC} = \overline{BC}$

$x + y = 6a$

$$\frac{(8a-x+y)\cancel{\cdot 6a}}{2} = \cancel{2}\cdot\frac{(8a-y+x)\cancel{6a}}{2}$$

$a \neq 0$

$$\begin{cases} x+y=6a \\ 8a-x+y=16a-2y+2x \end{cases}$$

$$\begin{cases} x+y=6a \\ 3x-3y=-8a \end{cases}$$

$$\begin{cases} 3x+3y=18a \\ 3x-3y=-8a \end{cases}$$

$$6x = 10a$$

$$x = \frac{5}{3}a$$

$$\begin{cases} 3x+3y=18a \\ 3x-3y=-8a \end{cases}$$

$$6y = 26a$$

$$y = \frac{13}{3}a$$