$$\frac{2x}{x-4}+\frac{3}{x-3}+4=\frac{30+5x^2-36x}{x^2-7x+12}$$

C.E. $\Rightarrow x\neq 4 \wedge x\neq 3$

$x^2-4x-3x+12$
$x(x-4)-3(x-4)$
$(x-4)(x-3)$

$$\frac{2x}{x-4}+\frac{3}{x-3}+4=\frac{30+5x^2-36x}{(x-4)(x-3)}$$

$$\Leftrightarrow \frac{2x(x-3)+3(x-4)+4(x-3)(x-4)}{(x-4)(x-3)}=\frac{30+5x^2-36x}{(x-4)(x-3)} \Leftrightarrow$$

2° metodo
$\Delta=49-48=1$
$x_{1,2}=\frac{7\pm 1}{2}$ < 3, 4
$a(x-x_1)(x-x_2)$
$(x-3)(x-4)$

$$\Leftrightarrow 2x^2-6x+3x-12+4x(x-4)-12(x-4)=30+5x^2-36x$$

$$2x^2-6x+3x-12+4x^2-16x-12x+48-30-5x^2+36x=0$$

$$x^2+5x+6=0 \qquad a=1,\ b=5,\ c=6$$

$$\Delta=b^2-4ac=25-24=1$$

$$x_{1,2}=\frac{-b\pm\sqrt{\Delta}}{2a}=\frac{-5\pm 1}{2}=\begin{cases}-3\\-2\end{cases}$$

$$S=\{-2;-3\}$$

C.E. $= x \neq +3 \wedge x \neq -1$

396) $\frac{3x-1}{12x-36} - \frac{4x}{3x+3} + \frac{4x-2}{4x^2-8x-12} = \frac{1}{3} + \frac{25x-2x^2+5}{12(x^2-2x-3)}$

$\frac{3x-1}{12(x-3)} - \frac{4x}{3(x+1)} + \frac{4x-2}{4(x^2-2x-3)} = \frac{1}{3} + \frac{25x-2x^2+5}{12(x-3)(x+1)}$

$\frac{3x-1}{12(x-3)} - \frac{4x}{3(x+1)} + \frac{4x-2}{4(x-3)(x+1)} = \frac{1}{3} + \frac{25x-2x^2+5}{12(x-3)(x+1)}$

D. $\frac{(3x-1)(x+1) - 16x(x-3) + 3(4x-2)}{12(x-3)(x+1)} = \frac{4(x-3)(x+1) + 25x - 2x^2 + 5}{12(x-3)(x+1)}$ D

$3x^2+3x-x-1-16x^2+48x+12x-6 = 4(x^2+x-3x-3)+25x-2x^2+5$

$-13x^2+2x-1+60x-6 = 4x^2+4x-12x-12+25x-2x^2+5$

$-13x^2+62x-7 \; \underline{-4x^2} - 4x + 12x + 12 - 25x + \underline{2x^2} - 5 = 0$

$-15x^2+45x = 0$

$-15x(x-3) = 0$

$x = +\frac{0}{+15} = 0 \quad \vee \quad x = +3$ non accettabile $\quad S = \{0\}$