1. Realiza las siguientes operaciones combinadas con fracciones algebraicas

a) $\left(\frac{4}{x} - x \right) : \left(\frac{1}{x} + \frac{1}{2} \right)$

b) $\left[\left(\frac{2}{x} + \frac{1}{x+1} \right) : \left(x - \frac{1}{x+1} \right) \right] \cdot x$

c) $\left(\frac{x+y}{x-y} - \frac{x-y}{x+y} \right) \cdot \left(\frac{x}{y} - \frac{y}{x} \right)$

d) $\left(\frac{1}{x} - \frac{1}{y} + \frac{x+y}{xy} \right) \cdot \frac{2xy}{x+y}$

e) $\left(\frac{x+1}{x-1} - \frac{x}{x+1} \right) \cdot \left(x - \frac{1}{x} \right)$

f) $\dfrac{1 + \dfrac{a+b}{a-b}}{1 - \dfrac{a+b}{a-b}}$

h) $\dfrac{\dfrac{x}{x-1} + \dfrac{x}{x+1}}{\dfrac{x}{x+1} - \dfrac{x}{x-1}} =$

i) $\dfrac{\dfrac{3}{x+1} - \dfrac{2}{x^2-1} + \dfrac{x}{x-1}}{\dfrac{x^2-6x+5}{x^2-1}} =$

k) $\dfrac{\dfrac{3}{x+1} - \dfrac{2}{x^2-1} + \dfrac{x}{x-1}}{\dfrac{x^2-25}{x^2-4x-5}} =$

Para practicar con soluciones

1.- Ejercicio:

a) $\left(1+\frac{x}{1-x}\right)\cdot\left(1-\frac{x}{1+x}\right)=$

b) $\left(1+\frac{2}{a}+\frac{1}{a^2}\right):\left(a+3+\frac{2}{a}\right)=$

c) $\left(\frac{1}{x-1}-\frac{2x}{x^2-1}\right):\frac{x}{x+1}=$

d) $\left[\left(\frac{1}{x}-\frac{1}{y}\right):\left(\frac{1}{x}+\frac{1}{y}\right)+\frac{x-y}{x+y}\right]:\left(\frac{1}{x}+\frac{1}{x+y}\right)=$

e) $\frac{3}{x+y}\cdot\left(\frac{x^2}{y^2}-1\right)\cdot\left(\frac{x+y}{x-y}-\frac{x-y}{x+y}\right)=$

f) $\left(\frac{a}{b}-\frac{b}{a}\right)\cdot\left(\frac{a}{b}+\frac{b}{a}\right)\cdot\left(\frac{ab}{a^2+b^2}\right)=$

Sol: a) $\frac{1}{1-x^2}$ b) $\frac{a+1}{a(a+2)}$ c) $\frac{-1}{x}$ d) 0 e) $\frac{12x}{y(x+y)}$ f) $\frac{a^2-b^2}{ab}$