FRACCIONES ALGEBRAICAS RESUELTOS

EJERCICIO 16 : **Opera y simplifica:**

a) $\dfrac{2x}{x^2-1}-\dfrac{2}{x-1}$

b) $\dfrac{x^2-2x+1}{x+3}:\dfrac{x-1}{x^2-9}$

a) $\dfrac{x+1}{x-1}-\dfrac{x^2+2}{x^2-x}$

b) $\dfrac{x^2-1}{x+2}\cdot\dfrac{(x+2)^2}{x^2+2x+1}$

a) $\dfrac{x-1}{x-2}+\dfrac{x^2+1}{x^2-4}$

b) $\dfrac{x^2+x}{2x+4}:\dfrac{x^2-1}{x+2}$

a) $\dfrac{2x+1}{x^2-9}+\dfrac{3}{x+3}$

b) $\dfrac{x^2+2x}{x^3}\cdot\dfrac{x^2}{x^2-4}$

a) $\dfrac{3x^2+1}{x^2+x}-\dfrac{2x}{x+1}$

b) $\left(1+\dfrac{1}{x}\right)\left(1-\dfrac{1}{x}\right)\cdot\dfrac{x}{x+1}$

Solución:

a) $\dfrac{2x}{x^2-1}-\dfrac{2}{x-1}=\dfrac{2x}{(x-1)(x+1)}-\dfrac{2(x+1)}{(x-1)(x+1)}=\dfrac{2x-2x-2}{(x-1)(x+1)}=\dfrac{-2}{x^2-1}$

b) $\dfrac{x^2-2x+1}{x+3}:\dfrac{x-1}{x^2-9}=\dfrac{(x-1)^2}{(x+3)}:\dfrac{(x-1)}{(x+3)(x-3)}=\dfrac{(x-1)^2(x+3)(x-3)}{(x+3)(x-1)}==(x-1)(x-3)=x^2-4x+3$

a) $\dfrac{x+1}{x-1}-\dfrac{x^2+2}{x^2-x}=\dfrac{x(x+1)}{x(x-1)}-\dfrac{x^2+2}{x(x-1)}=\dfrac{x^2+x-x^2-2}{x(x-1)}=\dfrac{x-2}{x^2-x}$

b) $\dfrac{x^2-1}{x+2}\cdot\dfrac{(x+2)^2}{x^2+2x+1}=\dfrac{(x-1)(x+1)}{(x+2)}\cdot\dfrac{(x+2)^2}{(x+1)^2}=\dfrac{(x-1)(x+2)}{x+1}=\dfrac{x^2+x-2}{x+1}$

a) $\dfrac{x-1}{x-2}+\dfrac{x^2+1}{x^2-4}=\dfrac{(x-1)(x+2)}{(x-2)(x+2)}+\dfrac{x^2+1}{(x-2)(x+2)}=\dfrac{x^2+x-2+x^2+1}{(x-2)(x+2)}=\dfrac{2x^2+x-1}{x^2-4}$

b) $\dfrac{x^2+x}{2x+4}:\dfrac{x^2-1}{x+2}=\dfrac{x(x+1)}{2(x+2)}:\dfrac{(x-1)(x+1)}{(x+2)}=\dfrac{x(x+1)(x+2)}{2(x+2)(x-1)(x+1)}=\dfrac{x}{2(x-1)}=\dfrac{x}{2x-2}$

a) $\dfrac{2x+1}{x^2-9}+\dfrac{3}{x+3}=\dfrac{2x+1}{(x-3)(x+3)}+\dfrac{3(x-3)}{(x-3)(x+3)}=\dfrac{2x+1+3x-9}{(x-3)(x+3)}=\dfrac{5x-8}{x^2-9}$

b) $\dfrac{x^2+2x}{x^3}\cdot\dfrac{x^2}{x^2-4}=\dfrac{x(x+2)}{x^3}\cdot\dfrac{x^2}{(x+2)(x-2)}=\dfrac{1}{x-2}$

a) $\dfrac{3x^2+1}{x^2+x}-\dfrac{2x}{x+1}=\dfrac{3x^2+1}{x(x+1)}-\dfrac{2x^2}{x(x+1)}=\dfrac{3x^2+1-2x^2}{x(x+1)}=\dfrac{x^2+1}{x^2+x}$

b) $\left(1+\dfrac{1}{x}\right)\left(1-\dfrac{1}{x}\right)\cdot\dfrac{x}{x+1}=\left(1-\dfrac{1}{x^2}\right)\cdot\dfrac{x}{x+1}=\dfrac{x^2-1}{x^2}\cdot\dfrac{x}{x+1}=\dfrac{(x-1)(x+1)}{x^2}\cdot\dfrac{x}{(x+1)}==\dfrac{x-1}{x}=1-\dfrac{1}{x}$