

1. Opera y simplifica las siguientes expresiones algebraicas

$\frac{2x-1}{3x-3} - \frac{2x^2-6x+4}{3x^2-6x+3}$ 3(x-1) 3(x^2-2x+1) = 3(x-1)^2 M.C.M [3(x-1)^2]	$\frac{2x-1}{3(x-1)} - \frac{2x^2-6x+4}{3(x-1)^2} \rightarrow \frac{(2x-1)(x-1)}{3(x-1)^2} - \frac{2x^2-6x+4}{3(x-1)^2} \rightarrow$ $\rightarrow \frac{(2x-1)(x-1) - [2x^2-6x+4]}{3(x-1)^2}$ $\rightarrow \frac{(2x^2-2x-x+1) - [2x^2-6x+4]}{3(x-1)^2} \rightarrow \frac{2x^2-3x+1-2x^2+6x-4}{3(x-1)^2} \rightarrow \frac{3x-3}{3(x-1)^2} \rightarrow$ $\rightarrow \frac{3(x-1)}{3(x-1)^2} \rightarrow \boxed{\frac{1}{(x-1)}}$
$\frac{x-1}{x^2-4} - \frac{x-2}{x^2+2x} + \frac{1}{x-2}$ (x+2)(x-2) x(x+2) M.C.M [(x+2)(x-2)x]	$\frac{x-1}{x^2-4} - \frac{x-2}{x^2+2x} + \frac{1}{x-2} \rightarrow \frac{x(x-1)}{x(x+2)(x-2)} - \frac{(x-2)(x-2)}{x(x+2)(x-2)} + \frac{x(x+2)}{x(x+2)(x-2)} \rightarrow$ $\frac{x(x-1) - (x-2)(x-2) - x(x+2)}{x(x+2)(x-2)} \rightarrow \frac{x^2-x - [x^2-4x+4] + x^2+2x}{x(x+2)(x-2)}$ $\frac{x^2-x-x^2+4x-4+x^2+2x}{x(x+2)(x-2)} \rightarrow \boxed{\frac{x^2+5x-4}{x(x+2)(x-2)}}$
$\frac{1}{x+1} + \frac{2x}{x^2-1} - \frac{1}{x-1}$ (x+1)(x-1) M.C.M [(x+1)(x-1)]	$\frac{(x-1)}{(x+1)(x-1)} + \frac{2x}{(x+1)(x-1)} - \frac{(x+1)}{(x+1)(x-1)} \rightarrow \frac{x-1+2x-x-1}{(x+1)(x-1)} \rightarrow \frac{2x-2}{(x+1)(x-1)}$ $\frac{2(x-1)}{(x+1)(x-1)} \rightarrow \boxed{\frac{2}{(x+1)}}$
$\frac{5x+5}{x^2+2x} - \frac{5}{x^2} + \frac{4x-5}{x+2}$ x(x+1) M.C.M [x^2(x+2)]	$\frac{(5x+5) \cdot x}{x^2(x+2)} - \frac{5(x+2)}{x^2(x+2)} + \frac{(4x-5) \cdot x^2}{x^2(x+2)} \rightarrow$ $\frac{5x^2+5x-5(x+2) + (4x-5) \cdot x^2}{x^2(x+2)} \rightarrow$ $\frac{5x^2+5x-5x-10+4x^3-5x^2}{x^2(x+2)} \rightarrow \boxed{\frac{4x^3-10}{x(x+2)}}$

$\frac{x^2 - 1}{x + 2} + \frac{3x - 3}{x + 3} - \frac{x - 3}{x^2 + 5x + 6}$ <i>Haciendo la descomposición del polinomio:</i>	<i>¡unidos!</i> $\frac{(x^2 - 4) \cdot (x + 3)}{(x + 2)(x + 3)} + \frac{(3x - 3)(x + 2)}{(x + 2)(x + 3)} - \frac{x - 3}{(x + 3)(x + 2)}$ $\frac{(x^2 - 4)(x + 3) + (3x - 3)(x + 2) - (x - 3)}{(x + 2)(x + 3)} \longrightarrow$ $\frac{x^3 + 3x^2 - x - 3 + 3x^2 + 6x - 3x - 6 - x + 3}{(x + 2)(x + 3)} \longrightarrow$ $\frac{x^3 + 6x^2 + x}{(x + 2)(x + 3)}$
$\frac{x^2 - x + 9}{x^3 - 9x} + \frac{1}{x^2 - 9} - \frac{1}{x - 3} + \frac{1}{x}$ <i> </i> $x(x^2 - 9)$ $x(x + 3)(x - 3)$ <i> </i> $(x + 3)(x - 3)$	$\frac{x^2 - x + 9}{x(x + 3)(x - 3)} + \frac{x}{x(x + 3)(x - 3)} - \frac{x(x + 3)}{x(x + 3)(x - 3)} + \frac{(x + 3)(x - 3)}{x(x + 3)(x - 3)}$ $\frac{x^2 - x + 9 + x - x(x + 3) + (x + 3)(x - 3)}{x(x + 3)(x - 3)} \longrightarrow \frac{x^2 - x + 9 - x^2 - 3x + x^2 - 9}{x(x + 3)(x - 3)}$ $\frac{x^2 - 4x}{x(x + 3)(x - 3)}$