

Efectuar:

$$1. \frac{2x}{x-1} - \frac{x}{x^2-1} + \frac{1}{x+1}$$

$$2. \left(\frac{2x}{x-1} - \frac{3}{x} \right) : \left(\frac{2}{x+1} + \frac{1}{x-1} \right)$$

$$3. \frac{2x}{x-1} \cdot \frac{3}{x}$$

Solución:

$$1. \frac{2x}{x-1} - \frac{x}{x^2-1} + \frac{1}{x+1} = \frac{2x^2 + 2x - 1}{x^2 - 1}$$

$$2. \left(\frac{2x}{x-1} - \frac{3}{x} \right) : \left(\frac{2}{x+1} + \frac{1}{x-1} \right) = \frac{3x^3 - x^2 + 3}{3x^2 - x}$$

$$3. \frac{2x}{x-1} \cdot \frac{3}{x} = \frac{6}{x-1}$$

Efectuar:

$$1. \frac{2x}{x-1} + \frac{x}{x^2-1} - \frac{1}{x+1}$$

$$2. \left(\frac{2x}{x-1} - \frac{3}{x} \right) : \left(\frac{2}{x+1} - \frac{1}{x-1} \right)$$

$$3. \frac{2x}{x-1} \cdot \frac{3}{x^2}$$

Solución:

$$1. \frac{2x}{x-1} + \frac{x}{x^2-1} - \frac{1}{x+1} = \frac{2x^2 + 2x + 1}{x^2 - 1}$$

$$2. \left(\frac{2x}{x-1} - \frac{3}{x} \right) : \left(\frac{2}{x+1} - \frac{1}{x-1} \right) = \frac{2x^3 - x^2 + 3}{x^2 - 3x}$$

$$3. \frac{2x}{x-1} \cdot \frac{3}{x^2} = \frac{6}{x^2 - x}$$

Efectuar:

$$1. \frac{x}{x-1} - \frac{1}{x^2-1} + \frac{2}{x+1}$$

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

$$3. \frac{3x}{x-1} \cdot \frac{5}{x}$$

Solución:

$$1. \frac{x}{x-1} - \frac{1}{x^2-1} + \frac{2}{x+1} = \frac{x^2 + 3x - 3}{x^2 - 1}$$

$$2. \left(\frac{2x}{x-1} - \frac{1}{x} \right) : \left(\frac{1}{x} - \frac{2}{x+1} \right) = -\frac{2x^3 + x^2 + 1}{(x-1)^2}$$

$$3. \frac{3x}{x-1} \cdot \frac{5}{x} = \frac{15}{x-1}$$

Efectuar:

$$1. \frac{x}{x-1} - \frac{3x}{x^2-1} + \frac{1}{x+1}$$

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

$$3. \frac{3x}{x-1} \cdot \frac{5}{x}$$

Solución:

$$1. \frac{x}{x-1} - \frac{3x}{x^2-1} + \frac{1}{x+1} = \frac{x^2 - x - 1}{x^2 - 1}$$

$$2. \left(\frac{x}{x-1} - \frac{1}{x} \right) : \left(\frac{1}{x+1} + \frac{2}{x-1} \right) = \frac{x^3 + 1}{3x^2 - x}$$

$$3. \frac{3x}{x-1} \cdot \frac{5}{x} = \frac{15}{x-1}$$

Efectuar:

$$1. \frac{x+1}{x-1} - \frac{3x}{x^2-1} + \frac{x}{x+1}$$

$$2. \left(\frac{x+1}{x-1} - 3 \right) : \left(\frac{2}{x+1} + \frac{1}{x-1} \right)$$

$$3. \frac{6x^2}{x+1} \cdot \frac{5}{x}$$

Solución:

$$1. \frac{x+1}{x-1} - \frac{3x}{x^2-1} + \frac{x}{x+1} = \frac{2x^2 - 2x + 1}{x^2 - 1}$$

$$2. \left(\frac{x+1}{x-1} - 3 \right) : \left(\frac{2}{x+1} + \frac{1}{x-1} \right) = \frac{-2x^2 + 2x + 4}{3x - 1}$$

$$3. \frac{6x^2}{x+1} \cdot \frac{5}{x} = \frac{30x}{x+1}$$

Calcular:

$$1. \left(\frac{3x}{x+1} - \frac{x}{x-1} \right) : \left(\frac{x}{x-1} + \frac{2x}{x+1} \right)$$

$$2. \frac{3x}{x-2} \cdot \frac{1}{x}$$

Solución:

$$1. \left(\frac{3x}{x+1} - \frac{x}{x-1} \right) : \left(\frac{x}{x-1} + \frac{2x}{x+1} \right) = \frac{2(x-2)}{3x-1}$$

$$2. \frac{3x}{x-2} \cdot \frac{1}{x} = \frac{3}{x-2}$$

Calcular:

$$1. \frac{2x}{x-2} + \frac{1}{x^2-4} = \frac{x}{x+2}$$

$$2. \left(\frac{3x}{x+1} + \frac{x}{x-1} \right) : \left(\frac{x}{x-1} - \frac{2x}{x+1} \right)$$

$$3. \frac{5x}{x-2} \cdot \frac{2}{x}$$

Solución:

$$1. \frac{2x}{x-2} + \frac{1}{x^2-4} = \frac{x}{x+2} \implies x = -3 - 2\sqrt{2} = -5,8284; \quad x = -3 + 2\sqrt{2} = -0,1715$$

$$2. \left(\frac{3x}{x+1} + \frac{x}{x-1} \right) : \left(\frac{x}{x-1} - \frac{2x}{x+1} \right) = \frac{2(2x-1)}{3-x}$$

$$3. \frac{5x}{x-2} \cdot \frac{2}{x} = \frac{10}{x-2}$$

Calcular:

$$1. \frac{x}{x-2} - \frac{1}{x^2-4} = \frac{x}{x+2}$$

$$2. \left(\frac{3x}{x+1} + \frac{x}{x-1} \right) : \left(\frac{x}{x-1} + \frac{2x}{x+1} \right)$$

$$3. \frac{8x}{x+3} \cdot \frac{3}{2x}$$

Solución:

$$1. \frac{x}{x-2} - \frac{1}{x^2-4} = \frac{x}{x+2} \implies x = \frac{1}{4}$$

$$2. \left(\frac{3x}{x+1} + \frac{x}{x-1} \right) : \left(\frac{x}{x-1} + \frac{2x}{x+1} \right) = \frac{2(2x-1)}{3x-1}$$

$$3. \frac{8x}{x+3} \cdot \frac{3}{2x} = \frac{12}{x+3}$$

Efectuar:

$$1. \frac{x+1}{x-1} - \frac{3x}{x^2-1} + \frac{x}{x+1}$$

$$2. \left(\frac{x+1}{x-1} - 3 \right) : \left(\frac{2}{x+1} + \frac{1}{x-1} \right)$$

$$3. \frac{6x^2}{x+1} \cdot \frac{5}{x}$$

Solución:

$$1. \frac{x+1}{x-1} - \frac{3x}{x^2-1} + \frac{x}{x+1} = \frac{2x^2-2x+1}{x^2-1}$$

$$2. \left(\frac{x+1}{x-1} - 3\right) : \left(\frac{2}{x+1} + \frac{1}{x-1}\right) = \frac{-2x^2+2x+4}{3x-1}$$

$$3. \frac{6x^2}{x+1} \cdot \frac{5}{x} = \frac{30x}{x+1}$$

Calcular x en apartado 1. y Simplificar en apartado 2.

1.

$$\frac{3x}{x-5} - \frac{1}{x+5} = \frac{x}{x^2-25}$$

2.

$$\left(\frac{x^2}{x^2+2x-3} - \frac{1}{x-1}\right) : \left(\frac{x+1}{x+3} + \frac{2x}{x-1}\right)$$

Solución:

1.

$$\frac{3x}{x-5} - \frac{1}{x+5} = \frac{x}{x^2-25} \implies x_1 = -3,906717751, \quad x_2 = -0,4266155818$$

2.

$$\left(\frac{x^2}{x^2+2x-3} - \frac{1}{x-1}\right) : \left(\frac{x+1}{x+3} + \frac{2x}{x-1}\right) = \frac{x^3-x-3}{3x^2+6x-1}$$

Reduce a común denominador y efectua la operación correspondiente:

$$1. \frac{x^2+1}{x-1} - \frac{x+1}{x(x^2-1)} = \frac{x^3+x-1}{x(x-1)}$$

$$2. \frac{x+1}{(x-1)(x+3)} - \frac{x-1}{(x-2)(x-1)(x+3)} = \frac{x^2-2x-1}{(x-2)(x-1)(x+3)}$$

$$3. \frac{1}{x^2-1} + \frac{x}{x^2+x} = \frac{x}{x^2-1}$$

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

$$5. \frac{x+1}{x^3-8x^2+21x-18} + \frac{1}{x^2-4x+3} = \frac{2x^2-5x+5}{(x-1)(x-2)(x-3)^2}$$

$$6. \frac{2}{x^3+9x^2+15x-25} - \frac{1}{x^3+3x^2-9x+5} = \frac{x-7}{(x-1)^2(x+5)^2}$$

$$7. \frac{2x}{x^3-6x^2+11x-6} + \frac{1}{x^2-4x+3} = \frac{3x-2}{x^3-6x^2+11x-6}$$

$$8. \frac{x}{x^3-3x+2} - \frac{3x}{x^3-4x^2+5x-2} = -\frac{2x(x+4)}{(x^2-4)(x-1)^2}$$

$$9. \frac{1}{x^2-3x+2} - \frac{x}{x^3-4x^2+5x-2} = -\frac{1}{(x-2)(x-1)^2}$$

$$10. \frac{2}{x^4+3x^3-3x^2-7x+6} + \frac{x}{x^3+4x^2+x-6} = \frac{x^2-x+2}{(x-1)^2(x+2)(x+3)}$$

Resolver y simplificar:

1.
$$\left(\frac{x+2}{x^2+x-2} - 1\right) : \left(\frac{x+5}{x-1} - \frac{1}{x+2}\right)$$

2.
$$\left(\frac{x+2}{4x^2+40x+84}\right) \cdot \left(\frac{8x+24}{x^2+4x+4}\right)$$

Solución:

1.
$$\left(\frac{x+2}{x^2+x-2} - 1\right) : \left(\frac{x+5}{x-1} - \frac{1}{x+2}\right) = -\frac{x^2-4}{x^2+6x+11}$$

2.
$$\left(\frac{x+2}{4x^2+40x+84}\right) \cdot \left(\frac{8x+24}{x^2+4x+4}\right) = \frac{2}{x^2+9x+14}$$

Resolver y simplificar:

1.
$$\left(\frac{x+2}{x^2-3x-10} - 1\right) : \left(\frac{x+2}{x-5} - \frac{1}{x+2}\right)$$

2.
$$\left(\frac{x+2}{5x^2-15x+10}\right) \cdot \left(\frac{5x-5}{x^2+4x+4}\right)$$

Solución:

1.
$$\left(\frac{x+2}{x^2-3x-10} - 1\right) : \left(\frac{x+2}{x-5} - \frac{1}{x+2}\right) = \frac{-x^2+4x+12}{x^2+3x+9}$$

2.
$$\left(\frac{x+2}{5x^2-15x+10}\right) \cdot \left(\frac{5x-5}{x^2+4x+4}\right) = \frac{1}{x^2-4}$$

Resolver y simplificar:

1.
$$\left(\frac{x+2}{x^2+2x-3} - 1\right) : \left(\frac{x+5}{x+3} - \frac{1}{x-1}\right)$$

2.
$$\left(\frac{x+2}{3x^2+12x-63}\right) \cdot \left(\frac{9x-27}{x^2+4x+4}\right)$$

Solución:

1.
$$\left(\frac{x+2}{x^2+2x-3} - 1\right) : \left(\frac{x+5}{x+3} - \frac{1}{x-1}\right) = -\frac{x^2+x-5}{x^2+3x-8}$$

2.
$$\left(\frac{x+2}{3x^2+12x-63}\right) \cdot \left(\frac{9x-27}{x^2+4x+4}\right) = \frac{3}{x^2+9x+14}$$