

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

$$\frac{-5x - 5}{x + 1} = \frac{-5(x + 1)}{x + 1} = -5$$

$$\frac{3x+1}{3x-4}$$

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

$$\frac{(3x + 1)(3x - 1) - (3x - 4)(3x + 4)}{(3x - 4)(3x + 1)}$$

$$\frac{(3x + 1)(3x - 1) - (3x - 4)(3x + 4)}{(3x - 4)(3x + 1)}$$

$$= \frac{9x^2 - 3x + 3x - 1 - (9x^2 + 12x - 12x - 16)}{(3x - 4)(3x + 1)} =$$

$$= \frac{9x^2 - 1 - 9x^2 + 16}{(3x - 4)(3x + 1)} = \frac{-1 + 16}{(3x - 4)(3x + 1)} = \frac{15}{(3x - 4)(3x + 1)}$$

$$\frac{9x^2 - 1 - 9x^2 + 16}{(3x - 4)(3x + 1)} = \frac{-1 + 16}{(3x - 4)(3x + 1)} = \frac{15}{(3x - 4)(3x + 1)}$$

$\overbrace{x+1}^{\quad}$ \overbrace{x}^{\quad}

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

Εκπ = $x(x+1)$

Θα μάθουμε αργότερα ότι το τριώνυμο $-3x^2 - 3x + 1$ παραγοντοποιείται

$\overbrace{x-3}^{\quad}$ $\overbrace{1}^{\quad}$

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

Εκπ x^2

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

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

$\overbrace{(x+2)(x-2)}^{\quad}$

$$\frac{2x^2 - 3x - 4x + 6 - 2x^2 - 1}{(x+2)(x-2)} = \frac{-7x + 5}{(x+2)(x-2)}$$

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

$E \leftarrow \pi \quad x(x+3)(x-3)$

$$\frac{x-3}{x(x+3)(x-3)} - \frac{x}{x(x+3)(x-3)} = \frac{x-3-x}{x(x+3)(x-3)} = \frac{-3}{x(x+3)(x-3)}$$

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

$E \leftarrow \pi = x^2(x+1)$

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

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

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

EKΠ = 2(x-1)²

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

$$\frac{2x^2 - 2x - 5x + 5 - 2x^2 + 6x - 8}{2(x - 1)^2} = \frac{-x - 3}{2(x - 1)^2}$$