

Nafn: _____

Einkunn: _____

Einfaldaðu:

$$1. \quad \frac{x+y}{x} + \frac{x-y}{y} = \frac{y(x+y) + x(x-y)}{xy} = \frac{xy + y^2 + x^2 - xy}{xy} = \frac{x^2 + y^2}{xy}$$

$$2. \quad \frac{2(x-3)}{3-x} = \frac{2(x-3)}{-(x-3)} = \underline{\underline{-2}}$$

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

$$4. \quad \frac{1}{x} + \frac{1}{x+1} = \frac{1(x+1) + x}{x(x+1)} = \frac{x+1+x}{x^2+x} = \underline{\underline{\frac{2x+1}{x^2+x}}}$$

$$5. \quad \frac{1}{x^2+5x-14} + \frac{1}{x^2+4x-12} = \frac{1}{(x-2)(x+7)} + \frac{1}{(x-2)(x+6)} =$$

$$\frac{1(x+6) + 1(x+7)}{(x-2)(x+6)(x+7)} = \frac{x+6+x+7}{(x-2)(x+6)(x+7)} = \underline{\underline{\frac{2x+13}{(x-2)(x+6)(x+7)}}}$$

$$6. \quad \frac{1}{x^2-xy} - \frac{1}{xy-y^2} = \frac{1}{x(x-y)} - \frac{1}{y(x-y)} = \frac{y-x}{xy(x-y)} = \frac{-(x-y)}{xy(x-y)}$$

$$= \underline{\underline{\frac{-1}{xy}}}$$

$$7. \frac{x^2+14x+49}{2x^2-2} \cdot \frac{x^2-49}{x^2-6x-7} = \frac{(x+7)(x+7)}{2(x^2-1)} \cdot \frac{(x+1)(x-7)}{(x+7)(x-7)} =$$

$$= \frac{(x+7)(x+1)}{2(x+1)(x-1)} = \frac{x+7}{2x-2}$$

Þáttaðu og stytstu:

$$8. \frac{x^2-4x+3}{x^2+2x-15} = \frac{(x-1)(x-3)}{(x+5)(x-3)} = \frac{x-1}{x+5}$$

9.

$$\frac{x^2-25}{x+5} = \frac{(x+5)(x-5)}{(x+5)} = \frac{x-5}{1} = \underline{\underline{x-5}}$$

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