Repetitorium matematiky

$(a+b)^2 = a^2 + 2ab + b^2$
$(a-b)^2 = a^2 - 2ab + b^2$
$(a+b)(a-b) = a^2 - b^2$

Test repetitorium

0.0.1 Upravte do základního tvaru

$$(\frac{-16}{3}) \cdot \sqrt{\frac{2}{3}} + \frac{\frac{64}{3}}{2 \cdot \sqrt{\frac{2}{3}}}$$

Hodina 07.10.2022

$$\left(\frac{1}{x+1} - \frac{2x}{x^2-1}\right)\left(\frac{1}{x} - 1\right) = \left(\frac{1}{x+1} - \frac{2x}{(x+1)(x-1)}\right)\left(\frac{1}{x} - 1\right) =$$
$$= \left(\frac{1}{x+1}\frac{x-1}{x-1} - \frac{2x}{(x+1)(x-1)}\right)\left(\frac{1}{x} - 1\right) = \left(\frac{x-1}{(x+1)(x-1)} - \frac{2x}{(x+1)(x-1)}\right)\left(\frac{1}{x} - 1\right) =$$
$$= \left(\frac{-x-1}{(x+1)(x-1)}\right)\left(\frac{1}{x} - \frac{x}{x}\right) = \frac{-x-1}{(x+1)(x-1)} \cdot \frac{1-x}{x} = \frac{-(x+1)}{(x+1)(x-1)} \cdot \frac{1-x}{x} =$$
$$= \frac{-1}{x-1} * \frac{1-x}{x} = \frac{-(1-x)}{(x-1)(x)} = \frac{-(-1)(x-1)}{(x-1)x} = \underline{\underline{\frac{1}{x}}}$$

$$\left(\frac{3}{(x-3)^2} + \frac{1}{x+3} - \frac{6}{x^2-9}\right) \cdot \frac{x^2-6x+9}{2} = \left(\frac{3}{(x-3)(x-3)} + \frac{1}{x+3} - \frac{6}{(x+3)(x-3)}\right) \cdot \frac{(x-3)(x-3)}{2} =$$
$$= \left(\frac{3}{(x-3)(x-3)} + \frac{x-3}{(x+3)(x-3)} - \frac{6}{(x+3)(x-3)}\right) \cdot \frac{(x-3)(x-3)}{2} =$$
$$= \left(\frac{3}{(x-3)(x-3)} + \frac{x-9}{(x+3)(x-3)}\right) \cdot \frac{(x-3)(x-3)}{2} =$$
$$= \left(\frac{3}{(x-3)(x-3)} + \frac{x-9}{(x+3)(x-3)} \cdot \frac{(x-3)}{(x-3)}\right) \cdot \frac{(x-3)(x-3)}{2} =$$
$$= \left(\frac{3}{(x-3)^2} + \frac{(x-9)(x-3)}{(x+3)(x-3)^2}\right) \cdot \frac{(x-3)^2}{2} = \frac{3x+9+\big((x-9)(x-3)\big)}{(x+3)(x-3)^2} \cdot \frac{(x-3)^2}{2} =$$
$$= \frac{3x+9+\big((x-9)(x-3)\big)}{2(x+3)} = \frac{3x+9+(x^2-3x-9x+27)}{2(x+3)} =$$
$$= \underline{\underline{\frac{x^2-9x+36}{2(x+3)}}}$$

$$\frac{x^2+7x}{9-x^2} : \frac{x^2-49}{x+3} = \frac{x(x+7)}{(x+3)(-x+3)} \cdot \frac{x+3}{(x+7)(x-7)} = \underline{\underline{\frac{x}{(x-7)(3-x)}}}$$