



$$(x + 6)/(x - 6) * (\{x - 4\}/\{x + 4\})^2 + (x - 6)/(x + 6) * (\{x + 9\}/\{x - 9\})^2 = 2 * (x^2 + 36)/(x^2 - 36)$$

$$(x + 6)/(x - 6) * (\{x - 4\}/\{x + 4\})^2 + (x - 6)/(x + 6) * (\{x + 9\}/\{x - 9\})^2 = (x+6)/(x-6) + (x-6)/(x+6)$$

$$(x + 6)/(x-6)[(\{x - 4\}/\{x + 4\})^2 - 1] = -(x - 6)/(x + 6) [(\{x + 9\}/\{x - 9\})^2 - 1] \quad |*(x+6)(x-6)$$

$$(x + 6)^2[(\{x - 4\}/\{x + 4\})^2 - 1] = -(x - 6)^2 [(\{x + 9\}/\{x - 9\})^2 - 1]$$

$$(x + 6)^2[(\{x - 4\} - \{x + 4\})/\{x + 4\}](\{x - 4\} + \{x + 4\})/\{x + 4\} = -(x - 6)^2 [(\{x + 9\} - \{x - 9\})/\{x - 9\}](\{x + 9\} + \{x - 9\})/\{x - 9\}]$$

$$(x + 6)^2[(-8/\{x + 4\})(2x/\{x + 4\})] = -(x - 6)^2 [(18/\{x - 9\})(2x/\{x - 9\})]$$

$$(x + 6)^2[-16x/\{x + 4\}^2] = -(x - 6)^2 [(36x/\{x - 9\}^2)]$$

$$x((x + 6)^2[-16/\{x + 4\}^2] + (x - 6)^2 [(36/\{x - 9\}^2)]) = 0$$

$$x = 0$$

$$(x + 6)^2[-16/\{x + 4\}^2] + (x - 6)^2 [(36/\{x - 9\}^2)] = 0$$

$$((x - 6) [(6/\{x - 9\}) - (x + 6)[4/\{x + 4\}]])(x + 6)[4/\{x + 4\}] + (x - 6) [(6/\{x - 9\})] = 0$$

$$(x - 6) [(6/\{x - 9\}) - (x + 6)[4/\{x + 4\}]] = 0 \quad (x + 6)[4/\{x + 4\}] + (x - 6) [(6/\{x - 9\})] = 0$$

$$[6(x-6)(x+4) - 4(x+6)(x-9)]/\{x-9\}\{x+4\} = 0 \quad [4(x + 6)(x - 9) + 6(x + 4)(x - 6)]/\{x + 4\}\{x - 9\} = 0$$

$$[10x^2 - 24x - 361]/\{x + 4\}\{x - 9\} = 0 \quad [4x^2 - 36x + 24x - 216 + 6x^2 - 36x + 24x - 144]/\{x + 4\}\{x - 9\} = 0$$

$$10x^2 - 24x - 360 = 0$$

$$D/4 = 144 + 3600 = 3744$$

$$x_1, x_2 = (12 \pm \sqrt{3744})/10 = 2(6 \pm \sqrt{936})/10 = (6 \pm \sqrt{936})/5$$

$[2x^2 + 72]/\{x-9\}\{x+4\} = 0$
корней нет

Отв: $0; (6 \pm \sqrt{936})/5$

$$2 * (x^2 + 36)/(x^2 - 36) = (\alpha x + \beta)/(x - 6) + (\gamma x + \theta)/(x + 6)$$

$$2 * (x^2 + 36)/(x^2 - 36) = (1x + \beta)/(x - 6) + (1x + \theta)/(x + 6)$$

$$2 * (x^2 + 36)/(x^2 - 36) = (x^2 + \beta x + 6x + 6\beta) + (x^2 + \theta x - 6x - 6\theta)/(x - 6)(x + 6)$$

$$2 * (x^2 + 36)/(x^2 - 36) = [2x^2 + x(\beta + \theta) + (6\beta - 6\theta)]/(x - 6)(x + 6)$$

$$(2x^2 + 72)/(x^2 - 36) = [2x^2 + x(\beta + \theta) + (6\beta - 6\theta)]/(x - 6)(x + 6)$$

$$72 = (6\beta - 6\theta)$$

$$0 = (\beta + \theta)$$

$$72 = 6\beta - 6\theta$$

$$0 = 6\beta + 6\theta$$

$$72 = 12\beta$$

$$\beta = 72/12 = 6$$

$$\theta = -6$$

$$2 * (x^2 + 36)/(x^2 - 36) = (x + 6)/(x - 6) + (x - 6)/(x + 6)$$