Schwierige Aufgaben

Löse folgende Gleichungen.

a) (2x – 4)(2x – 3) = (6x – 14)(2x – 9) – (2x – 12)(5x – 12)

4x² - 8x – 6x + 12 = 12x² - 28x – 54x + 126 – 10x²+ 60x + 24x- 144

 4x² - 14x + 12 = 2x² + 2x – 18 |-2x²-2x-18

 2x² - 16x + 30 = 0

 x1,2 = 4 $\pm \sqrt{16-15}$

 x1 = 4 + 1 = 5

 x2 = 4 - 1 = 3

 **L = {3, 5}**

b) (x – 2)(2x + 1) + (x – 1)² = (x + 3)² - (8 – x)²

2x² - 4x + x – 2 + x² - 2x + 1 = x² + 6x + 9 – 64 + 16x – x²

 3x³ - 5x – 1 = 22x – 5 |-22x+5

 3x² - 9x + 18 = 0

 x1,2 = 4,5 $\pm \sqrt{20,25-18}$

 x1 = 4,5 + 1,5 = 6

 x2 = 4,5 - 1,5 = 3

 **L = {3, 6}**

c) 0,5(x – 1) - 0,2(x – 3) = (0,5x + 2)² – (0,5x + 1)²

0,5x² - 0,5x - 0,2x² + 0,6x = 0,25x² + 2x + 4 – 0,25x² - x - 1

 0,3x² + 0,1x = x + 3 |-x-3

 0,3x² - 0,9x – 3 = 0 |:0,3

 x² - 3x – 10 = 0

 x1,2 = 1,5 $\pm \sqrt{2,25+10}$

 x1 = 1,5 + 3,5 = 5

 x2 = 1,5 - 3,5 = -2

 **L = {-2, 5}**