**Wurzelgleichungen III**

Löse zuerst folgende Wurzelgleichungen. Finde den Begriff, indem du die Buchstaben den Lösungen zuordnest und danach die Reihenfolge der Buchstaben zusammenpuzzelst.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **-24** | **-0,9** | **-8** | **-7** | **-6** | **0,45** | **4** | **-3** | **0,2** | **-11** |
| **R** | **P** | **G** | **K** | **H** | **O** | **D** | **M** | **C** | **I** |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **16** | **24** | **3** | **12** | **45** | **6** | **7** | **14** | **11** | **10** |
| **L** | **A** | **E** | **X** | **S** | **F** | **E** | **N**  | **F** | **B** |

$\sqrt{x+6 }$ + $\sqrt{x-1 }$ = $\sqrt{4x+9 }$ |² x + 6 + 2$\sqrt{\left(x+6\right)\left(x-1\right) }$ + x – 1 = 4x + 9 |T

**L = {10}** 2x + 5+ 2$\sqrt{\left(x+6\right)\left(x-1\right) }$ = 4x + 9 |-2x-5

**x + 6** $\geq $ **0 x** $\geq $ **-6** 2$\sqrt{x²+5x-6 }$ = 2x + 4 |:2

**x - 1** $\geq $ **0 x** $\geq $ **1** $\sqrt{x²+5x-6 }$ = x + 2 |²

**D = R\{x|x** $\geq $ **1}** x² + 5x – 6 = x² + 4x + 4 |-x²

 5x – 6 = 4x + 4 |-4x+6

 x = 10

$\sqrt{x+8 }$ - $\sqrt{x+2 }$ = $2\sqrt{x }$ |² x + 8 - 2$\sqrt{\left(x+8\right)\left(x+2\right) }$ + x + 2 = 4x |-2x-10

**L = {0,45}** - 2$\sqrt{\left(x+8\right)\left(x+2\right) }$ = 2x – 10 |:(-2)

**x + 8** $\geq $ **0 x** $\geq $ **-8** $\sqrt{x²+10x+16 }$ = -x + 5 |²

**x + 2** $\geq $ **0 x** $\geq $ **-2**  x² + 10x + 16 = x²-10x+25 |-x²

**D = R\{x|x** $\geq $ **-2}**  10x + 16 = -10x + 25 |+10x-16

 20x = 9 |:20

 x = 0,45

$\sqrt{x+25 }$ = 6 + $\sqrt{25-x }$ |² x + 25 = 36 + 12$\sqrt{25-x }$ + 25 – x |T

**L = {-24}** x + 25 = 61 + 12$\sqrt{25-x }$ - x |+x-61

**x + 25** $\geq $ **0 x** $\geq $ **-25** 2x – 36 = 12$\sqrt{25-x }$ |:2

**25 – x** $\geq $ **0** $\leq $**x 25** x – 18 = 6$\sqrt{25-x }$ |²

**D = R\{x|-25** $ \leq $**x** $ \leq $ **-2}** x² - 36x + 324 = 36(25 – x) |T

x² - 36x + 324 = 900 – 36x |+36x -900

x² - 576 = 0 |3.Binom

 **(x + 24)(x – 24) = 0**

 **x1 = -24 ~~x~~~~2~~ ~~= 24~~**

$4-\sqrt{x+36 }$ = -$\sqrt{70-x }$ |² 16 - 8$\sqrt{x+36 }$ + x + 36 = 70 – x |T

**L = {-11, 45}** 52 - 8$\sqrt{x+36 }$ + x = 70 – x |-52-x

**x + 36** $\geq $ **0 x** $\geq $ **-36** - 8$\sqrt{x+36 }$ = 18 – 2x |²

**70 – x** $\geq $ **0 x** $ \leq $ **70** 64(x + 36) = 324 – 72x + 4x² |T

**D = R\{x|-36** $ \leq $**x** $ \leq $ **70}** 64x + 2304 = 4x² - 72x + 324 |-64x-2304

 4x² - 136x – 1980 = 0 |:4

 x² - 34x – 495 = 0

 x1,2 = 17 $\pm \sqrt{289+495}$

 **x1 = 45 x2 = - 11**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **B** | **0** | **R** | **I** | **S** |