**Gleichungen mit Wurzeln lösen II**

Löse folgende Gleichungen und schreibe die Lösungsmenge.

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| 1) $\sqrt{y-6}$ – 2 = $\sqrt{y+10}$ |²($\sqrt{y-6}$ – 2)² = y + 10 |Ty – 6 -4$\sqrt{y-6}$ + 4 = y + 10 |T y – 2 -4$\sqrt{y-6}$ = y + 10 |-y+2 -4$\sqrt{y-6}$ = 12 |² 16(y – 6) = 144 |:16 y – 6 = 9 |+6 y = 15 L = {15} | 2) $\sqrt{a}+2 $ = $\sqrt{a+20}$ |² ($\sqrt{a}+2$)² = a + 20 |Ta + 4$\sqrt{a}$ + 4 = a + 20 |-a-4 4 = 16 |:4 $\sqrt{a}$ = 4 |² a = 16 L = {16} |
| 3) $\sqrt{b-10}$ = 10 - $\sqrt{b+10}$ |² b – 10 = (10 - $\sqrt{b+10}$)² |T b–10 = 100-20$\sqrt{b+10}$+b+10 |Tb – 10 = 110 + b - 20$\sqrt{b+10}$ |-b -10 = 110 - 20$\sqrt{b+10}$ |-110-120 = - 20$\sqrt{b+10}$ |:(-20) 6 = $\sqrt{b+10}$ |² 36 = b + 10 |-10 26 = b L = {26} | 4) $\sqrt{c-5}$ + 2 = $\sqrt{c+7}$ |²($\sqrt{c-5}$ + 2)² = c + 7 |Tc – 5 + 4$\sqrt{c-5} $+ 4 = c + 7 |Tc – 1 +4$\sqrt{c-5}$ = c + 7 |-c+1 4$\sqrt{c-5}$ = 8 |² 16(c - 5) = 8 |T 16c – 80 = 8 |+80 16c = 88 |:16 c = 5,5 L = {5,5} |
| 5) $\sqrt{d-10}$ + 3 = $\sqrt{d+5}$ |²($\sqrt{d-10}$ + 3)² = d + 5 |Td-10+6$\sqrt{d-10}$ +9 = d + 5 |-d+1 6$\sqrt{d-10}$ = 6 |:6 $\sqrt{d-10}$ = 1 |² d – 10 = 1 |+10 d = 11 L = {11} | 6) $\sqrt{w-3}$ = $\sqrt{w+2}$ – 1 |²w – 3 = ($\sqrt{w+2}$ – 1)² |Tw – 3 = w+2 -2$\sqrt{w+2}$ + 1 |Tw – 3 = w + 3 -2$\sqrt{w+2}$ |-w-3 -6 = -2$\sqrt{w+2}$ |:(-2) 3 = $\sqrt{w+2}$ |² 9 = w + 2 |-2 7 = w L = {7} |
| 7) $\sqrt{x+10}$ = 7 - $\sqrt{x+10}$ |²x + 10 = (7 - $\sqrt{x+10}$)² |Tx + 10 = 49 -14$\sqrt{x+10}$ +x+10 |Tx + 10 = 59 + x -14$\sqrt{x+10}$ |-x 10 = 59 - 14$\sqrt{x+10}$ |-59 -49 = -14$\sqrt{x+10}$ |:(-14) 3,5 = $\sqrt{x+10}$ |² 12,25 = x + 10 |-10 2,25 = x L = {2,25} | 8) $\sqrt{e+7}$ + 1 = $\sqrt{e+2}$ |²($\sqrt{e+7}$ + 1)² = e + 2 |Te + 7 + 2$\sqrt{e+7}$ + 1 = e + 2 |-e 8 + 2$\sqrt{e+7}$ = 2 |-8 2$\sqrt{e+7}$ = - 6 |:2 $\sqrt{e+7}$ = -3 |² e + 7 = 9 |-7 e = 2 L = {2} |

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| 9) $\sqrt{z-4}$ – 3 =$ \sqrt{z+11}$ |²($\sqrt{z-4}$ – 3)² = z + 11 |Tz - 4 - 6$\sqrt{z-4}$ + 9 = z + 11 |Tz + 5 - 6$\sqrt{z-4}$ = z + 11 |-z-5 - 6$\sqrt{z-4}$ = 6 |:(-6) $\sqrt{z-4}$ = -1 |² z – 4 = 1 |+4 z = 5 L = {5} | 10) $\sqrt{b+5}$ = 3 + $\sqrt{b+32}$ |²b + 5 = (3 + $\sqrt{b+32}$)² |Tb+5 = 9 + 6$\sqrt{b+32}$ + b + 32 |-b 5 = 41 + 6$\sqrt{b+32}$ |-41-36 = 6$\sqrt{b+32}$ |:6 -6 = $\sqrt{b+32}$ |² 36 = b + 32 |-32 4 = b L = {4} |