**Gleichungen mit Wurzeln lösen I**

Löse folgende Gleichungen und schreibe die Lösungsmenge.

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| 1) $\sqrt{a+4}$ = 10 |² a + 4 = 100 |-4 a = 96 L = {96} | 2) $\sqrt{a+1}+2 $ = 4 |-2 $\sqrt{a+1}$ = 2 |² a + 1 = 4 |-1 a = 3 L = {3} |
| 3) $\sqrt{a+30}$ = 6$\sqrt{a-5}$ |² a + 30 = 36(a – 5) |T a + 30 = 36a – 180 |-a 30 = 35a – 180 |+180 210 = 35a |:35 6 = a L = {6} | 4) 4$\sqrt{a-7}$ = $\sqrt{a+8}$ |²16(a - 7) = a + 8 |T16a – 112 = a + 8 |-a15a – 112 = 8 |+112 15a = 120 |:15 a = 8 L = {8} |
| 5) $\sqrt{a+17}$ = 2$\sqrt{a-10}$ |² a + 17 = 4(a – 10) |T a + 17 = 4a – 40 |-a 17 = 3a – 40 |+40 57 = 3a |:3 19 = a L = {19} | 6) 4$\sqrt{a-20}$ = $\sqrt{a-5}$ |²16(a – 20) = a – 5 |T 16a – 320 = a – 5 |-a 15a – 320 = - 5 |+320 15a = 315 |:15 a = 21 L = {21} |
| 7) $\sqrt{a+22}$ = 2$\sqrt{a-5}$ |² a + 22 = 4(a – 5) |T a + 22 = 4a – 20 |-a 22 = 3a – 20 |+20 42 = 3a |:3 14 = a L = {14} | 8) $\sqrt{a-9}$ = 2$\sqrt{a+18}$ |² a – 9 = 4(a + 18) |T a – 9 = 4a + 72 |-a – 9 = 3a + 72 |-72 -81 = 3a |:3 -27 = a L = {-27} |
| 9) $\sqrt{a+7}$ – 1 =$\sqrt{a+2}$ |² ($\sqrt{a+7}$ – 1)² = ($\sqrt{a+2}$)² |Ta + 7 -2$\sqrt{a+7}$ + 1 = a + 2 |-a-8 -2$\sqrt{a+7}$ = -6 |:(-2) $\sqrt{a+7}$ = 3 |² a + 7 = 9 |-7 a = 2 L = {2} | 10) $\sqrt{a^{2}-15}$ = a – 15 |² a² - 15 = a² - 30a + 225 - 15 = - 30a + 225 |+30a 30a – 15 = 225 |+15 30a = 240 |:30 a = 8 L = {8} |