1. $x^2 + \left(2\sqrt{3} + 1\right) + 3 + \sqrt{3} = 0$ $\{-\sqrt{3} - 1, -\sqrt{3}\}$
2. $(1 - x^2)^2 - 2(x^2 - 1) + 1 = 0$ $\left\{\pm\sqrt{2}\right\}$
3. $4x^2 - 4x + 1 = 0$ $\{\frac{1}{2}\}$
4. $\sqrt{2x + 7} + \sqrt{x - 5} = \sqrt{3x + 2}$ $\{5\}$
5. $3\sqrt{x + 5} - 5 = x$ $\{-5, 4\}$
6. $\sqrt{-x - \sqrt{1 - x}} = 1$ $\{-3\}$
7. $\sqrt{x} + x = 2$ $\{1\}$
8. $\log_2(x + 1) = 3$ $\{7\}$
9. $\log_2 x = 3$ $\{8\}$
10. $\log x = 2\log 5 + \log 4$ $\{100\}$
11. $\frac{\log_3(6x-2)}{\log_3(x-3)} = 2$ $\{11\}$
12. $\log_2(x + 7) - \log_2 x = 3$ $\{1\}$
13. $3^x + 3^{x+1} = 108$ $\{3\}$
14. $3^x + 3^{x+1} = 7 \cdot 4^x - 4^{x+1}$ $\{1\}$
15. $\sqrt[4]{4^x} \cdot \sqrt[3]{2^{x-3}} = \sqrt[6]{16}$ $\{2\}$
16. $4^{2x} - 6 \cdot 4^x + 8 = 0$ $\{\frac{1}{2}, 1\}$
17. $x(a - 1) + a(x + 4) = 2$ $\left\{a = \frac{1}{2} \;\; x\epsilon\mathcal{R}; a\epsilon\mathcal{R}\backslash\left\{\frac{1}{2}\right\}\; x\epsilon\{-2\}\right\}$
18. $xa^2 = a(1 + 3x) - 3$ $\{a = 0\; x\epsilon\emptyset; a = 3\; x\epsilon\mathcal{R}; a\epsilon\mathcal{R}\{0,3\}\; x\epsilon\{\frac{1}{a}\}\}$
19. $|x - 4| + |2x - 1| = |x| + 3$ $x \in \langle\frac{1}{2}, 4\rangle$
20. $\frac{x+2}{3x-2} \leq 0$ $x \in <-2,\; \frac{2}{3})$
21. $x^2 - 2x - 15 \geq 0$ $x \in <-\infty, -3) \cup <5, +\infty)$