

Name

Date

§3-5

## PROBLEM SET

Solve each radical equation.

1.  $\sqrt{2x+1} = 3$

2.  $\sqrt{2-y} + 1 = 5$

3.  $5 - \sqrt{2k} = 3$

4.  $9 - \sqrt{t+2} = 5$

5.  $3 - \sqrt{x+1} = 0$

6.  $\sqrt[3]{r} = 2$

7.  $\sqrt{x} - 3 = 5$

8.  $3 - \sqrt{y+3} = 0$

9.  $4 - \sqrt{x+1} = 5$

10.  $5 - \sqrt{x+3} = 3$

11.  $t = \sqrt{6t-9}$

12.  $t = 2\sqrt{t-1}$

13.  $x + 2\sqrt{x+1} = 7$

14.  $x = \sqrt{6x+18} - 3$

15.  $x + 2 = \sqrt{2x+3}$

16.  $3\sqrt{x-2} + 2 = x$

17.  $x + 3\sqrt{x-2} = 12$

18.  $a - 4 = 2\sqrt{a-5}$

19.  $\sqrt{x^2 + 3x - 2} - x = 1$

20.  $x - 1 + \sqrt{x^2 + 3} = 0$

21.  $\sqrt{x^2 - 3x - 1} = 3$

22.  $\sqrt{x} + \sqrt{x-7} = 7$

23.  $2 = \sqrt{x-5} - \sqrt{x+16}$

24.  $\sqrt{x} + \sqrt{x+11} = 11$

25.  $\sqrt{x+3} + \sqrt{x} = 5$

26.  $\sqrt{x+1} = 2 - \sqrt{x}$

27.  $3\sqrt{c} - 1 = \sqrt{c} + 1$

28.  $\sqrt{m+10} - \sqrt{m-6} = 2$

29.  $\sqrt{2x+4} = 3 - \sqrt{2x}$

30.  $2\sqrt{3w-5} - 3\sqrt{w+1} = 0$

31.  $\sqrt{4s+3} = 2\sqrt{s-1} + 1$

32.  $\sqrt{x} - \sqrt{x+8} = 8$

33.  $\sqrt{3+x} + \sqrt{x} = \frac{6}{\sqrt{3+x}}$

34.  $\frac{5}{\sqrt{x-1}} + \frac{\sqrt{x+4}}{2} = 2\sqrt{x-1}$

35.  $\sqrt{x+7} = 2 - \sqrt{x-5}$

36.  $2\sqrt{x+1} - \sqrt{2x} = \sqrt{x-4}$

37.  $2\sqrt{x} - \sqrt{4x-22} = \sqrt{2}$

38.  $\sqrt{x+9} - \sqrt{x+2} = \sqrt{4x-27}$

## PROBLEM SOLUTIONS

- |                      |                       |                    |                                    |
|----------------------|-----------------------|--------------------|------------------------------------|
| 1. 4                 | 2. -14                | 3. 2               | 4. 14                              |
| 5. 8                 | 6. 8                  | 7. 64              | 8. 6                               |
| 9. no solution       | 10. 1                 | 11. 3              | 12. 2                              |
| 13. 3                | 14. $\pm 3$           | 15. -1             | 16. $\{2, 11\}$                    |
| 17. 6                | 18. 6                 | 19. 3              | 20. -1                             |
| 21. $\{-2, 5\}$      | 22. 16                | 23. no solution    | 24. 25                             |
| 25. $\frac{121}{25}$ | 26. $\frac{9}{16}$    | 27. 1              | 28. 15                             |
| 29. no solution      | 30. $\frac{29}{3}$    | 31. $\frac{13}{4}$ | 32. no solution                    |
| 33. 1                | 34. 5                 | 35. no solution    | 36. $\frac{21 \pm 2\sqrt{154}}{7}$ |
| 37. 18               | 38. no real solutions |                    |                                    |