Solving Radical Equations:

Process:
1. Isolate the term containing the radical term (keep the coefficient of the radical with that term because this will reduce the need for fractions until the last step in solving equations)
2. Square both sides. Remember when a radical is squared the answer is just the number/variable/expression that was under the radical sign.
3. From this point on it is a matter of solving a simple equation
   a. Isolate the term containing the variable on one side of the equal sign
   b. Divide both sides by the coefficient of the variable

Assign:

1. $\sqrt{x} = 5 \Rightarrow \left(\sqrt{x}\right)^2 = (5)^2 \Rightarrow x = 25$

2. $\sqrt{x} = 4 \Rightarrow \left(\sqrt{x}\right)^2 = (4)^2 \Rightarrow x = 16$

3. $\sqrt{x} = 1 \Rightarrow \left(\sqrt{x}\right)^2 = (1)^2 \Rightarrow x = 1$

4. $\sqrt{2x} = 4 \Rightarrow \left(\sqrt{2x}\right)^2 = (4)^2 \Rightarrow 2x = 14 \Rightarrow x = 7$

5. $\sqrt{3x} = 5 \Rightarrow \left(\sqrt{3x}\right)^2 = (5)^2 \Rightarrow 3x = 25 \Rightarrow x = \frac{25}{3}$

6. $\sqrt{4x} = 3 \Rightarrow \left(\sqrt{4x}\right)^2 = (3)^2 \Rightarrow 4x = 9 \Rightarrow x = \frac{9}{4}$

7. $2\sqrt{x} = 3 \Rightarrow \left(2\sqrt{x}\right)^2 = (3)^2 \Rightarrow 4 \cdot x = 9 \Rightarrow x = \frac{9}{4}$

8. $3\sqrt{x} = 2 \Rightarrow \left(3\sqrt{x}\right)^2 = (2)^2 \Rightarrow 9 \cdot x = 4 \Rightarrow x = \frac{4}{9}$

9. $4\sqrt{x} = 5 \Rightarrow \left(4\sqrt{x}\right)^2 = (5)^2 \Rightarrow 16 \cdot x = 25 \Rightarrow x = \frac{25}{16}$

10. $2\sqrt{3x} = 7 \Rightarrow \left(2\sqrt{3x}\right)^2 = (7)^2 \Rightarrow 4 \cdot 3x = 49 \Rightarrow 12x = 49 \Rightarrow x = \frac{49}{12}$

11. $3\sqrt{5x} = 12 \Rightarrow \left(3\sqrt{5x}\right)^2 = \left(12\right)^2 \Rightarrow 9 \cdot 5x = 144 \Rightarrow 45x = 144 \Rightarrow x = {}^{144}\!/_{45} = {}^{16}\!/_5$

12. $3\sqrt{2x} = 4 \Rightarrow \left(3\sqrt{2x}\right)^2 = \left(4\right)^2 \Rightarrow 9 \cdot 2x = 16 \Rightarrow 18x = 16 \Rightarrow x = {}^{16}\!/_{18} = {}^8\!/_9$

13. $\sqrt{x+1} = 4 \Rightarrow \left(\sqrt{x+1}\right)^2 = \left(4\right)^2 \Rightarrow x+1 = 16 \Rightarrow x = 15$

14. $\sqrt{x-3} = 2 \Rightarrow \left(\sqrt{x-3}\right)^2 = \left(2\right)^2 \Rightarrow x-3 = 4 \Rightarrow x = 7$

15. $\sqrt{4-x} = 5 \Rightarrow \left(\sqrt{4-x}\right)^2 = \left(5\right)^2 \Rightarrow 4-x = 25 \Rightarrow -x = 21 \Rightarrow x = -21$

16. $\sqrt{3x+1} = 2 \Rightarrow \left(\sqrt{3x+1}\right)^2 = \left(2\right)^2 \Rightarrow 3x+1 = 4 \Rightarrow 3x = 3 \Rightarrow x = 1$

17. $\sqrt{5x-4} = 3 \Rightarrow \left(\sqrt{5x-4}\right)^2 = \left(3\right)^2 \Rightarrow 5x-4 = 9 \Rightarrow 5x = 13 \Rightarrow x = {}^{13}\!/_5$

18. $\sqrt{6x-5} = 7 \Rightarrow \left(\sqrt{6x-5}\right)^2 = \left(7\right)^2 \Rightarrow 6x-5 = 49 \Rightarrow 6x = 54 \Rightarrow x = 9$

19. $\sqrt{x} - 4 = 2 \Rightarrow \sqrt{x} = 6 \Rightarrow \left(\sqrt{x}\right)^2 = \left(6\right)^2 \Rightarrow x = 36$

20. $\sqrt{x} + 3 = 7 \Rightarrow \sqrt{x} = 4 \Rightarrow \left(\sqrt{x}\right)^2 = \left(4\right)^2 \Rightarrow x = 16$

21. $\sqrt{x} + 2 = 5 \Rightarrow \sqrt{x} = 3 \Rightarrow \left(\sqrt{x}\right)^2 = \left(3\right)^2 \Rightarrow x = 9$

22. $\sqrt{3x} - 6 = 1 \Rightarrow \sqrt{3x} = 7 \Rightarrow \left(\sqrt{3x}\right)^2 = \left(7\right)^2 \Rightarrow 3x = 49 \Rightarrow x = {}^{49}\!/_3$

23. $\sqrt{5x} + 7 = 9 \Rightarrow \sqrt{5x} = 2 \Rightarrow \left(\sqrt{5x}\right)^2 = \left(2\right)^2 \Rightarrow 5x = 4 \Rightarrow x = {}^4\!/_5$

24. $\sqrt{3x-1} + 2 = 6 \Rightarrow \sqrt{3x-1} = 4 \Rightarrow \left(\sqrt{3x-1}\right)^2 = \left(4\right)^2 \Rightarrow 3x-1 = 16 \Rightarrow 3x = 17 \Rightarrow x = {}^{17}\!/_3$