

Radical Equations  
Algebra 2B - Burrus

Use the examples at the top of the page as you solve for  $x$  in the problems at the bottom of the page.

Examples:

$\sqrt{4x-3} = 5$ $4x-3 = 25$ $4x = 28$ $x = 7$ <p><i>Check :</i></p> $\sqrt{4(7)-3} = \sqrt{25} = 5$	$\sqrt{2x+11}-3 = 10$ $\sqrt{2x+11} = 13$ $2x+11 = 13^2 = 169$ $2x = 158$ $x = 79$ <p><i>Check :</i></p> $\sqrt{2(79)+11}-3 = \sqrt{169}-3$ $= 13-3 = 10$	$\sqrt{x+2} + 10 = x$ $\sqrt{x+2} = x-10$ $x+2 = (x-10)^2$ $x+2 = x^2 - 20x + 100$ $0 = x^2 - 21x + 98$ $x = \frac{21 \pm \sqrt{(-21)^2 - 4(1)(98)}}{2(1)}$ $= \frac{21 \pm \sqrt{49}}{2} = \frac{21 \pm 7}{2}$ $= \frac{28}{2} \text{ or } \frac{14}{2} = 14 \text{ or } 7$ <p><i>Check :</i></p> $x = 14: \sqrt{14+2} + 10 = 4 + 10 = 14$ $x = 7: \sqrt{7+2} + 10 = 3 + 10 \neq 7$ <p>So <math>x = 14</math> is the only solution.</p>
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Use your own paper to solve for  $x$ :

1.  $\sqrt{8x+16} = 2x+1$
2.  $\sqrt{2x+9} - 4 = 3$
3.  $\sqrt{1-6x} + 6 = 11$
4.  $\sqrt{3x-23} + 4 = x-3$
5.  $\sqrt{10x-1} + 32 = 5x$
6.  $x+4 = \sqrt{18x-7}$
7.  $\sqrt{x-2} + 4 = x-4$
8.  $\sqrt{3x+4} + 5 = 13$
9.  $\sqrt{4x+3} = 2x-16$
10.  $\sqrt{6x+19} - 4 = x$
11.  $\sqrt{x+34} - 4 = x$
12.  $x-7 = \sqrt{28-4x}$