

Solving Square Root and Other Radical Equations

Solve.

1. $5\sqrt{x} + 2 = 12$
 $5\sqrt{x} = 10$
 $(\sqrt{x})^2 = (2)^2$
 $x = 4$

2. $(\sqrt{2x-5})^2 = (7)^2$
 $2x-5=49$
 $2x=54$
 $x=27$

3. $\sqrt{4x+3} + 2 = 5$
 $\sqrt{4x+3} = 3$
 $4x+3 = 9$
 $4x = 6$

4. $(\sqrt[3]{2x+1})^3 = (3)^3$
 $2x+1 = 27$
 $2x = 26$
 $x = 13$

5. $[(x-2)^{1/3}]^3 = [5]^3$
 $x-2 = 125$
 $x = 127$

6. $\frac{2x^{3/4}}{2} = \frac{16}{2}$
 $(x^{3/4})^{4/3} = (8)^{4/3}$
 $x = (\sqrt[3]{8})^4$
 $x = 2^4$

7. $[(2x+1)^{1/3}]^3 = [1]^3$
 $2x+1 = 1$
 $2x = 0$
 $x = 0$

8. $(\sqrt{x+1})^2 = (x+1)^2$
 $x+1 = x^2+2x+1$
 $0 = x^2+x$
 $0 = x(x+1)$
 $x = 0$ $x = -1$
 $x = 16$

9. $(\sqrt{7x-1})^2 = (\sqrt{5x+5})^2$
 $7x-1 = 5x+5$
 $2x = 6$
 $x = 3$

10. $\sqrt{x+9} - \sqrt{x} = 1$
 $(\sqrt{x+9})^2 = (\sqrt{x}+1)^2$
 $x+9 = (\sqrt{x}+1)(\sqrt{x}+1)$
 $x+9 = x+2\sqrt{x}+1$
 $\frac{8}{2} = \frac{2\sqrt{x}}{2}$
 $4 = \sqrt{x}$
 $x = 16$