

Practice

Radical Equations and Inequalities

Solve each equation.

1. $\sqrt{x-2} = 6$

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

3. $\sqrt[3]{7r+5} = -3$

4. $\sqrt{6x+12} - \sqrt{4x+9} = 1$

5. $\sqrt{x-3} - 3\sqrt{x+12} = -11$

6. $\sqrt{6n-3} = \sqrt{4+7n}$

7. $5 + 2x = \sqrt{x^2 - 2x + 1}$

8. $3 - \sqrt{r+1} = \sqrt{4-r}$

Solve each inequality.

9. $\sqrt{3r+5} > 1$

10. $\sqrt{2t-3} < 5$

11. $\sqrt{2m+3} > 5$

12. $\sqrt{3x+5} < 9$

13. **Engineering** A team of engineers must design a fuel tank in the shape of a cone. The surface area of a cone (excluding the base) is given by the formula $S = \pi\sqrt{r^2 + h^2}$. Find the radius of a cone with a height of 21 meters and a surface area of 155 meters squared.