4-7

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.