

**Practice B****Solving Radical Equations and Inequalities****Solve each equation.**

1. $\sqrt{x+6} = 7$

2. $\sqrt{5x} = 10$

3. $\sqrt{2x+5} = \sqrt{3x-1}$

4. $\sqrt{x+4} = 3\sqrt{x}$

5. $\sqrt[3]{x-6} = \sqrt[3]{3x+24}$

6. $3\sqrt[3]{x} = \sqrt[3]{7x+5}$

7. $\sqrt{-14x+2} = x-3$

8. $(x+4)^{\frac{1}{2}} = 6$

9. $4(x-3)^{\frac{1}{2}} = 8$

10. $4(x-12)^{\frac{1}{3}} = -16$

Solve each inequality.

11. $\sqrt{3x+6} \leq 3$

12. $\sqrt{x-4} + 3 > 9$

13. $\sqrt{x+7} \geq \sqrt{2x-1}$

14. $\sqrt{2x-7} > 9$

Solve.

15. A biologist is studying two species of animals in a habitat. The population, p_1 , of one of the species is growing according to $p_1 = 500t^2$ and the population, p_2 , of the other species is growing according to $p_2 = 100t^2$ where time, t , is measured in years. After how many years will the populations of the two species be equal?

**Practice B****Solving Radical Equations and Inequalities**

Solve each equation.

1. $\sqrt{x+6} = 7$

$x = 43$

2. $\sqrt{5x} = 10$

$x = 20$

3. $\sqrt{2x+5} = \sqrt{3x-1}$

$x = 6$

4. $\sqrt{x+4} = 3\sqrt{x}$

$x = \frac{1}{2}$

5. $\sqrt[3]{x-6} = \sqrt[3]{3x+24}$

$x = -15$

6. $3\sqrt[3]{x} = \sqrt[3]{7x+5}$

$x = \frac{1}{4}$

7. $\sqrt{-14x+2} = x-3$

No solutions, since both -1 and -7 are extraneous

8. $(x+4)^{\frac{1}{2}} = 6$

$x = 32$

9. $4(x-3)^{\frac{1}{2}} = 8$

$x = 7$

10. $4(x-12)^{\frac{1}{3}} = -16$

$x = -52$

Solve each inequality.

11. $\sqrt{3x+6} \leq 3$

$-2 \leq x \leq 1$

12. $\sqrt{x-4} + 3 > 9$

$x > 40$

13. $\sqrt{x+7} \geq \sqrt{2x-1}$

$\frac{1}{2} \leq x \leq 8$

14. $\sqrt{2x-7} > 9$

$x > 44$

Solve.

15. A biologist is studying two species of animals in a habitat. The population, p_1 , of one of the species is growing according to $p_1 = 500t^2$ and the population, p_2 , of the other species is growing according to $p_2 = 100t^2$ where time, t , is measured in years. After how many years will the populations of the two species be equal?

25 years