_____ Date ___

LESSON Practice B				
8-8 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.	$\sqrt{x+7} \ge \sqrt{2x-1}$	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 $p_1 = 500t^{\frac{3}{2}}$ 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?

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Practice B		$3. \sqrt{x+4} = 5$
1. <i>x</i> = 43	2. <i>x</i> = 20	<i>x</i> + 4 = 25
3. $x = 6$	4. $x = \frac{1}{2}$	x = 21
3. x = 0	4. $x = \frac{1}{2}$	$2\sqrt{21+4} =$
5. $x = -15$	6. $x = \frac{1}{4}$	$2\sqrt{25} = 2 \cdot 5$
	-	= 10 🗸
 No solutions, since extraneous 	e both -1 and -7 are	4. $5x + 6 = 81$
8. <i>x</i> = 32	9. <i>x</i> = 7	5 <i>x</i> = 75
10. <i>x</i> = -52	11. <i>−</i> 2 ≤ <i>x</i> ≤ 1	x = 15
12. <i>x</i> > 40	13. $\frac{1}{2} \le x \le 8$	5. $\left[(6x-8)^{\frac{1}{3}} \right]^3 = 4^3$
14. <i>x</i> > 44	15. 25 years	6x - 8 = 64
Practice C		6 <i>x</i> = 72
1. $x = 31$	2. $x = 47$	<i>x</i> = 12
3. <i>x</i> = 7	4. <i>x</i> = 9	6. $x^2 = \left[(x+6)^{\frac{1}{2}} \right]^2$
5. <i>x</i> = –2 and <i>x</i> = 1	6. <i>x</i> = 5	
7. $x = \frac{5}{2}$		$x^2 = x + 6$ $x^2 - x - 6 = 0$
8. <i>x</i> = 9; <i>x</i> = −2 is an	extraneous solution.	(x-3)(x+2)=0
9. $-\frac{5}{4} \le x \le 1$	10. <i>x</i> ≥ 5	<i>x</i> = 3
4		Challenge
11. 7 ≤ <i>x</i> ≤ 16	12. <i>x</i> > –21	1. 15.25
13. <i>x</i> > 4	14. $-2 \le x \le 123$	3. No solution
15. $v = \frac{\sqrt{3}}{2}c$		5. 5
2 Reteach		7. 5 or $-\frac{1}{9}$
1. $2x + 11 = 27$		9. 7
2x = 16; x = 8		Problem Solving
$4\sqrt[3]{2(8)+11} = 12$		1. Directly
$4\sqrt[3]{36} = 12$ 🗸		2. a. $d = \frac{s^2}{30f}$
2. $\sqrt{x-3} = 4$		b. About 58 ft
<i>x</i> – 3 = 16		c. No; possible an
<i>x</i> = 19		were only 52 ft,
$5 + \sqrt{19 - 3} = 5$		d. About 33 mi/h

- $5 + \sqrt{19 3} = 5$ $5 + \sqrt{16} = 5 + 4$
- = 9 🗸

3. a. About 9 ft

4. B

b. By at least 15 ft

2.9

4.19

6.3

10.6

No; possible answer: his skid marks

5. A

were only 52 ft, not 58 ft.

8. 8 or -1

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