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LESSON	Solving Quadratic Equations by Taking Square Roots Practice and Problem Solving: A/B			
3-1				
For Probindicate	olems 1–2, solve th d method. Show yo	e equation $-2x^2 + 7 = -1$ u our work	using the	
1. Solve by factoring.		2. Solve by taking square roots.		
Find the	square of each im	aginary number.		
4. 4 <i>i</i>		5. <i>i</i> √11	$6. \ \frac{i\sqrt{7}}{3}$	
Determi	ne whether each ec	quation has real or imagin	nary solutions by solving.	
7. 7 <i>x</i> ²	-12=0	8. $x^2 + 9 = 3$	9. $2(x^2-1)=(x^2-3)$	
Recall th	ne equation for falli	ng objects: $h(t) = h_0 - 16t^2$	² , where <i>h</i> is the	
height o object's	f the object, in feet initial height in fee	, at any time <i>t</i> , in seconds .t. Use this equation for Pi	s, and <i>h</i> ₀ is the Problems 10–11.	
10. A ca How	rpenter dropped a h long did it take the l	ammer from a rooftop 48 fe hammer to hit the ground?	eet above ground.	

11. An acorn fell from a branch 20 feet high and landed on a branch 7 feet high. How long did it take the acorn to fall?

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Unit 2 Quadratic Functions, Equations, and Relations MODULE 3 Quadratic Equations

LESSON 3-1

Practice and Problem Solving: A/B

1. x = -2 and x = 2



2. factoring:

$$-2x^{2} + 7 = -1$$

$$-2x^{2} + 8 = 0$$

$$-2(x^{2} + 4) = 0$$

$$-2(x + 2)(x - 2) = 0$$

$$x = -2 \text{ or } x = 2$$

3. taking square roots:

$$-2x^{2} + 7 = -1$$

$$-2x^{2} = -8$$

$$x^{2} = 4$$

$$x = \pm\sqrt{4}$$

$$x = \pm 2$$

4. -16
5. -11
6. $-\frac{7}{9}$
7. real solutions; $x = \pm 2\sqrt{\frac{3}{7}}$
8. imaginary solutions; $x = \pm i\sqrt{6}$
9. imaginary solutions; $x = \pm i$
10. $\sqrt{3} \approx 1.7$ sec
11. $\frac{\sqrt{13}}{4} \approx 0.9$ sec

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Practice and Problem Solving: C

1. x = -4 and x = 4



2. factoring:

$$\frac{1}{2}x^{2} - 3 = 5$$
$$\frac{1}{2}x^{2} - 8 = 0$$
$$\frac{1}{2}(x^{2} - 16) = 0$$
$$\frac{1}{2}(x + 4)(x - 4) = 0$$
$$x = -4 \text{ or } x = 4$$

3. taking square roots:

$$\frac{1}{2}x^{2} - 3 = 5$$

$$\frac{1}{2}x^{2} = 8$$

$$x^{2} = 16$$

$$x = \pm\sqrt{16}$$

$$x = \pm 4$$

4. -441
5. -388
6. $-\frac{189}{25}$
7. imaginary solutions: $x = \pm 6i\sqrt{3}$
8. real solutions: $x = \pm\sqrt{\frac{14}{5}}$

9. imaginary solutions: $x = \pm i\sqrt{5}$