

# 5.2 Re-Teach Worksheet

Name Key

## Intermediate Algebra B

5.2 I can represent real-world situations with quadratic equations and solve using appropriate methods.

### Level 1:

Solve the quadratic Equations:

1.  $2x^2 - 1 = 49$

$$2x^2 - 1 = 49$$

$$2x^2 = 50$$

$$\frac{2x^2}{2} = \frac{50}{2}$$

$$\sqrt{x^2} = \sqrt{25}$$

$$x = \pm 5$$

$$2x^2 - 50 = 0$$

$$a=2 \quad b=0 \quad c=-50$$

$$0 \pm \sqrt{0^2 - 4(2)(-50)}$$

$$0 \pm \sqrt{400}$$

$$\frac{0 \pm 20}{4}$$

$$\frac{0+20}{4} = 5 \quad \frac{0-20}{4} = -5$$

2.  $x^2 - 5x = 6$

$$x^2 - 5x - 6 = 0$$

$$(x-6)(x+1) = 0$$

$$x=6 \quad x=-1$$

$$a=1 \quad b=-5 \quad c=-6$$

$$5 \pm \sqrt{(-5)^2 - 4(1)(-6)}$$

$$5 \pm \sqrt{49}$$

$$\frac{5 \pm 7}{2}$$

$$\frac{5+7}{2} = 6 \quad \frac{5-7}{2} = -1$$

3.  $3(x-1)^2 + 5 = 32$

$$3(x-1)^2 = 27$$

$$\sqrt{3(x-1)^2} = \sqrt{27}$$

$$x-1 = \pm 3$$

$$x-1=3 \quad x-1=-3$$

$$x=4 \quad x=-2$$

4.  $7x^2 = -16x - 11$

$$7x^2 + 16x + 11 = 0$$

$$a=7 \quad b=16 \quad c=11$$

$$x = \frac{-16 \pm \sqrt{16^2 - 4(7)(11)}}{2(7)}$$

$$x = \frac{-16 \pm \sqrt{-52}}{14}$$

$$x = \frac{-16 \pm i\sqrt{52}}{14}$$

5.  $16x^2 = -1 - 8x$

$$16x^2 + 8x + 1 = 0$$

$$a=16 \quad b=8 \quad c=1$$

$$\frac{-8 \pm \sqrt{8^2 - 4(16)(1)}}{2(16)}$$

$$\frac{-8 \pm \sqrt{0}}{32} = \frac{-8}{32} = -0.25$$

6.  $x^2 - 2x = 6$

$$x^2 - 2x - 6 = 0$$

$$a=1 \quad b=-2 \quad c=-6$$

$$x = \frac{2 \pm \sqrt{(-2)^2 - 4(1)(-6)}}{2(1)}$$

$$x = \frac{2 \pm \sqrt{28}}{2}$$

$$x = \frac{2 \pm 2\sqrt{7}}{2}$$

$$x = 1 \pm \sqrt{7}$$

Simplify the following Radicals:

7.  $\sqrt{-75}$

$$i\sqrt{75}$$

$$i\sqrt{3} \sqrt{25}$$

$$i\sqrt{3} \cdot 5$$

$$5i\sqrt{3}$$

8.  $2\sqrt{96}$

$$2\sqrt{16} \sqrt{6}$$

$$2 \cdot 4\sqrt{6}$$

$$8\sqrt{6}$$

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Simplify the following Radicals:

9.  $\sqrt{45}$

~~$\sqrt{9 \cdot 5}$~~   
 $\sqrt{9 \cdot 5}$   
 $3\sqrt{5}$

11.  $\frac{3 \pm \sqrt{81}}{2}$

$\frac{3-9}{2} = \frac{-6}{2}$       $\frac{3+9}{2} = \frac{12}{2}$   
 $x = -3$       $x = 6$

13.  $\frac{7 \pm \sqrt{25}}{2(2)}$

$\frac{7 \pm 5}{4}$

$\frac{7+5}{4}$

$\frac{7-5}{4}$

$\frac{12}{4} = 3$

$\frac{2}{4} = .5$

10.  $\frac{4 \pm \sqrt{32}}{2}$

$\frac{4 \pm 4\sqrt{2}}{2} = 2 \pm 2\sqrt{2}$

$\frac{\sqrt{16} \cdot \sqrt{2}}{4\sqrt{2}}$

12.  $\frac{-8 \pm \sqrt{-100}}{4}$

$\frac{-8 \pm 10i}{4}$

$\frac{-4 \pm 5i}{2}$

$\frac{\sqrt{16} \sqrt{3}}{4\sqrt{3}}$

14.  $\frac{-4 \pm \sqrt{48}}{2(3)}$

$\frac{-4 \pm 4\sqrt{3}}{6}$

$\frac{-2 \pm 2\sqrt{3}}{3}$