Mastery Algebra 1 Sample Mastery Quiz 9-6 Name: KEY

Per: ____ ☐

9-6 The Quadratic Formula

Answer each question as directed.

1. Given the quadratic equation $2x^2 - 16x = -25$ (+25 +25) $2x^2 - 16x + 25 = 0$

   a. What value should be used for a in the quadratic formula? $a = 2$

   b. What value should be used for b in the quadratic formula? $b = -16$

   c. What value should be used for c in the quadratic formula? $c = 25$

2. Given the quadratic equation $9x^2 + 12x + 4 = 0$

   a. What is the value of the discriminant?

   $b^2 - 4ac = (12)^2 - 4(9)(4)$

   $= 144 - 144$

   $= 0$

   b. Use the discriminant to tell how many solutions the equation will have.

   1 solution

Solve each quadratic equation using the quadratic formula. Give your answer in the form indicated.

3. **Give your answer in simplified radical form.**

   $x^2 - 2x = 4$ (−4 −4)

   $x^2 - 2x - 4 = 0$

   $a = 1,\ b = -2,\ c = -4$

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

   $= \dfrac{2 \pm \sqrt{4 + 16}}{2}$

   $= \dfrac{2 \pm \sqrt{20}}{2}$ $\quad \sqrt{20} = \sqrt{4}\sqrt{5} = 2\sqrt{5}$

   $= \dfrac{2 \pm 2\sqrt{5}}{2}$

   Answer: $1 \pm \sqrt{5}$

4. **Give your answer rounded to the nearest hundredth.** $3x^2 + 2x - 4 = 0$

   $a = 3,\ b = 2,\ c = -4$

   $x = \dfrac{-2 \pm \sqrt{(2)^2 - 4(3)(-4)}}{2(3)}$

   $= \dfrac{-2 \pm \sqrt{4 + 48}}{6}$

   $= \dfrac{-2 \pm \sqrt{52}}{6}$

   $x = \dfrac{(-2 + \sqrt{52})}{6}$ or $x = \dfrac{(-2 - \sqrt{52})}{6}$

   ≈ 0.87 $\quad \approx -1.54$

   Answer: $x = 0.87$ or -1.54