Name __ANSWER KEY__ (Adv. Alg.) Per. _____ Date _____

SOLVING QUADRATIC EQUATIONS QUIZ REVIEW

ZERO PRODUCT PROPERTY

Use the **Zero Product Property** to solve each quadratic equation for x. **Show all work.**

1. $3x(x-2) = 0$

$3x = 0$ $x - 2 = 0$

$\boxed{x = 0}$ $\boxed{x = 2}$

2. $(x+4)(5+x) = 0$

$x + 4 = 0$ $5 + x = 0$

$\boxed{x = -4}$ $\boxed{x = -5}$

3. $\dfrac{2x^2 - 14x}{2x} \dfrac{}{2x} = 0$

$2x(x - 7) = 0$

$2x = 0$ $x - 7 = 0$

$\boxed{x = 0}$ $\boxed{x = 7}$

GRAPHING

For each graph, state the **number of solutions** the quadratic function has. Then, **list the solutions**, if there are any.

4. # of solutions __2__

x = __-2, 3__
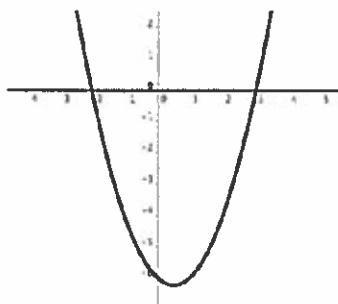
5. # of solutions __0__

x = _____
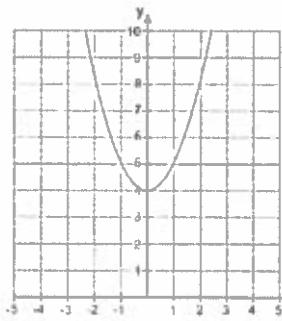
6. # of solutions __1__

x = __1__
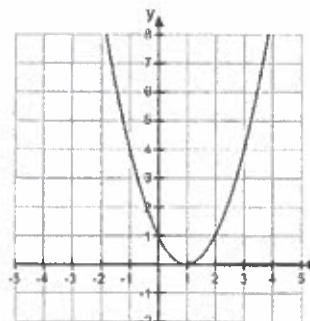
QUADRATIC FORMULA

Calculate the **discriminant** for each quadratic equation, showing all work. Then, state the **number of real solutions** the equation has. $b^2 - 4ac$

7. $x^2 - 3x + 4 = 0$

$(-3)^2 - 4(1)(4)$

$= 9 - 16 = \boxed{-7}$

★ no real roots

8. $8x^2 + 2x + 5 = 0$

$(2)^2 - 4(8)(5)$

$= 4 - 160 = \boxed{-156}$

★ no real roots

9. $-4x^2 + 12x - 9 = 0$

$(12)^2 - 4(-4)(-9)$

$= 144 - 144 = \boxed{0}$

★ 1 real roots

Solve each quadratic equation for x using the **quadratic formula. Show all work.** $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

10. $x^2 - 10x + 16 = 0$

$x = \dfrac{-(-10) \pm \sqrt{(-10)^2 - 4(1)(16)}}{2(1)}$

$= \dfrac{10 \pm \sqrt{36}}{2} = \dfrac{10 \pm 6}{2}$

$\dfrac{10 + 6}{2} = \dfrac{16}{2} = \boxed{8}$

$\dfrac{10 - 6}{2} = \dfrac{4}{2} = \boxed{2}$

11. $x^2 - 3x - 1 = 9 \rightarrow x^2 - 3x - 10 = 0$

$x = \dfrac{-(-3) \pm \sqrt{(-3)^2 - 4(1)(-10)}}{2(1)}$

$= \dfrac{3 \pm \sqrt{49}}{2} = \dfrac{3 \pm 7}{2}$

$\dfrac{3 + 7}{2} = \dfrac{10}{2} = \boxed{5}$

$\dfrac{3 - 7}{2} = \dfrac{-4}{2} = \boxed{-2}$