



Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

## SOLVE USING THE QUADRATIC FORMULA WORKSHEET

### Steps:

1. Put the quadratic equation in standard form.  $ax^2 + bx + c = 0$
2. Find the values  $a$ ,  $b$  and  $c$ .

3. Use the quadratic formula to solve the quadratic equations:  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Solve using the quadratic formula:

1.  $x^2 + 8x = 4$                       2.  $x^2 - 2x = 99$                       3.  $12x - 9x^2 = -3$

4.  $6x^2 - 8x + 3 = 0$                       5.  $x^2 - 6x + 10 = 0$                       6.  $x^2 + 9 = 8x$

Find the value of the discriminant for each quadratic equation. Then, describe the number of roots for the equation.

7.  $7x^2 - 11x + 5 = 0$                       8.  $x^2 + 22x = -121$                       9.  $-5x^2 + 8x = 1$

### Application Problems:

10. Highway safety engineers use the formula  $d = 0.05s^2 + 1.1s$  to estimate the minimum stopping distance,  $d$ , in feet for a vehicle traveling,  $s$ , miles per hour. If a car is able to stop after 125 feet, what is the fastest it could have been traveling when the driver first applied the brakes?

Use the following labels for the following problems.

$h$  = height (feet)

$t$  = time in motion (seconds)

$h_0$  = initial height (feet)

$v_0$  = initial vertical velocity

11. Using the model  $h = -16t^2 + v_0t + h_0$ , a cheer squad throws a basket toss. The cheerleader leaves their hands 6 feet above the ground and has an initial vertical velocity of 45 feet per second. The group catches the girl when she falls back to a height of 5 feet. How long is the girl in the air?

12. Competitors in the 10-meter platform diving competition jump upward and outward before diving into the pool below. The height,  $h$ , of a diver in meters above the pool after  $t$  seconds can be approximated by the equation  $h = -4.9t^2 + 3t + 10$ . When will the diver hit the water?

13. A garden measuring 12 meters by 16 meters is to have a pedestrian pathway installed all around it, increasing the total area to 285 square meters. What will be the width of the pathway?