Algebra II Name _____

Quadratics #3

Write an equation of the quadratic in vertex form.

1. passes through (13, 8) and has vertex (3, 2)

2. passes through (-7, -15) and has vertex (-5, 9)

3. A baseball is thrown up in the air. The table shows the heights y (in feet) of the baseball after x seconds. Write an equation for the path of the baseball. Find the height of the baseball after 5 seconds. (No GC to find the equation)

Time, x	0	2	4	6
Baseball height	6	22	22	6

4. Every rope has a safe working load. A rope should not be used to lift a weight greater than its safe working load. The table shows the safe working loads S (in pounds) for ropes of circumference C (in inches). Write an equation for the safe working load for a rope. Find the safe working load for a rope that has a circumference of 10 inches. (No GC to find the equation)

Circumference, C	0	1	2	3
Safe working load, S	0	180	720	1620

For the following questions, use your graphing calculator

5. The table shows the heights y of a competitive water-skier x seconds after jumping off a ramp. Using your quadratic regression function, write a function that models the height of the water-skier over time. How high is the water skier after 1.24 seconds?

Time, x	0	0.25	0.75	1	1.1
Height, y	22	22.5	17.5	12	9.24

6. The table shows the heights h (in feet) of a wrench t seconds after it has been dropped from a building under construction. Using your quadratic regression function, write a function that models the height of the wrench over time. When does the wrench hit the ground?

Time, t	0	1	2	3	4
Height, h	400	384	336	256	144

7. The table shows the results of an experiment testing the maximum weight y (in tons) supported by ice x inches thick. Using your GC, write a function that models the data. How much weight can be supported by ice that is 22 inches thick?

Ice thickness, x	12	14	15	18	20	24	27
Maximum weight, y	3.4	7.6	10.0	18.3	25.0	40.6	54.3