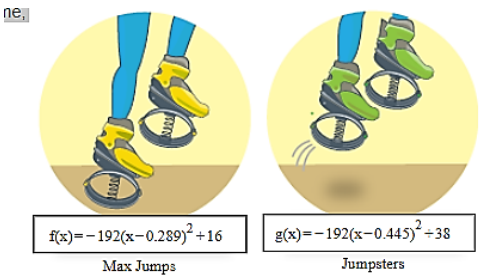
Quadratic Key Features Circuit Training Name:_____

Date:_____Block:_____

Directions: Beginning in cell #1, read the question and answer it. Search for your answer and call that cell #2. Continue in this manner until you complete the circuit.

Answer: domain #_____1_____ The height, in inches, that a person can jump while wearing a pair of jumping shoes is based on the time, x, in seconds, from the start of the jump. Beth is testing out Max Jumps and Jumpsters to determine which shoes she likes better. Compare the maximum heights on the two sets of shoes.  **Which key feature of the quadratic functions would help you answer this question?**	**Answer: Find x when y = 20.** #_____ If a projectile is fired straight upward from the ground with an initial speed of 64 feet per second, then its height y in feet after x seconds is given by the function $y = -16t^2+64t$. **Which key feature of the quadratic function would tell you how long it would take the object to reach its maximum height?**
Answer: The h from the vertex #_____ The arch of the Tacoma Narrows Bridge in Washington is in the shape of a parabola. The function $y =0.016(x-52.5)^2 + 45$ models the bridge, where x represents the horizontal distance (in meters) from the arch's left end and y represents the distance from the base of the arch. What is the width of the arch?  **Which key feature of the quadratic function will help you answer this question?**	**Answer: y-intercept** #_____ Keenan launches a model helicopter. The height (y) of the helicopter, in feet, is given by the equation $y = -16x^2 + 64x + 19$, where x is the time, in seconds since launch. How long will it take the helicopter to reach 20 feet? **What could you do to answer this question?**

Answer: Range # _____ A ball is thrown from the top row of seats in a stadium. The function $y = -16x^2 + 64x + 80$ gives the height, *y*, in feet, of the ball *x* seconds after it is thrown. How long will it be before the ball hits the ground? **Which key feature would help you answer this question?**	**Answer: Find y when x = 20.** #_____ Between 2000 and 2005, the number of skateboarders, y, in the United States, in millions, can be approximated by the equation $y = 0.33x^2 + 2.27x + 3.96$, where x represents the number of years since 2000. If this model is accurate, how many skateboarders were in the United States in the year 2000? **Which key feature would help you answer this question?**
Answer: x-intercept #_____ A toy cannon ball is launched from a cannon on top of a platform. The equation $y = -x^2 + 20x + 4$ gives the height, *y*, in meters, of the ball *x* seconds after it is launched. **What could you do to determine the height of the cannon ball 20 seconds after launch?**	**Answer: The k from the vertex** # _____ If an object is dropped from the observation deck, its height y in feet, after x seconds, is given by $y=-16x^2+70$. What are all the possible heights of the object? **Which key feature of the quadratic function would help you answer this question?**