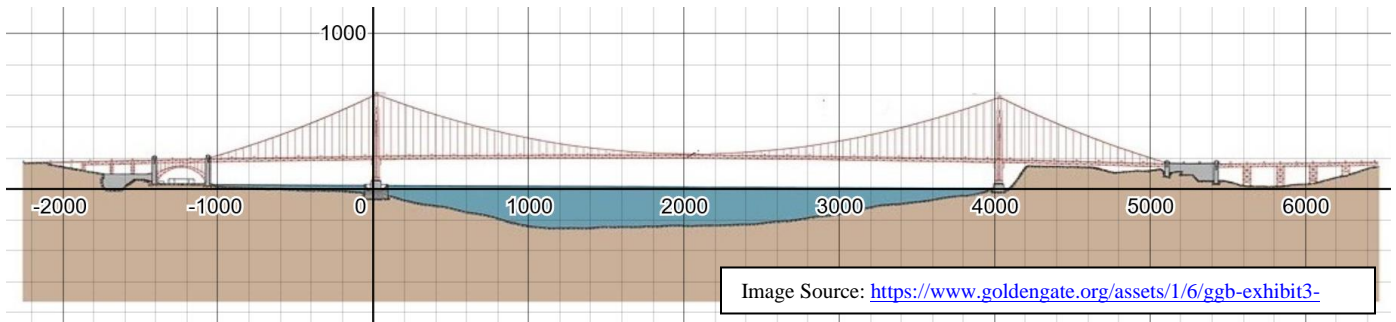


NAME: \_\_\_\_\_

## Bridge Design and Parabolas

Use <https://www.desmos.com/calculator/bwmp8evqqv>

A new bridge, inspired by the Golden Gate Bridge, is shown in the provided graph below where dimensions are given in terms of feet:



- What is the span of the bridge (distance between the two towers)? \_\_\_\_\_
- How high above the water is the deck of the bridge (also known as the roadway surface that allows vehicles to cross)? \_\_\_\_\_
- What is the vertex  $(h,k)$  of the middle parabolic cable? \_\_\_\_\_
- What is the sag depth of the parabolic cable? \_\_\_\_\_
- What is the y-intercept  $(x, y)$  of the parabolic cable? \_\_\_\_\_
- Knowing the vertex, y-intercept, and vertex form for an equation of a parabola to be  $y = a(x - h)^2 + k$  where  $(h, k)$  is the vertex determine a. Show your below.
- Write the equation of the parabolic cable in vertex form.