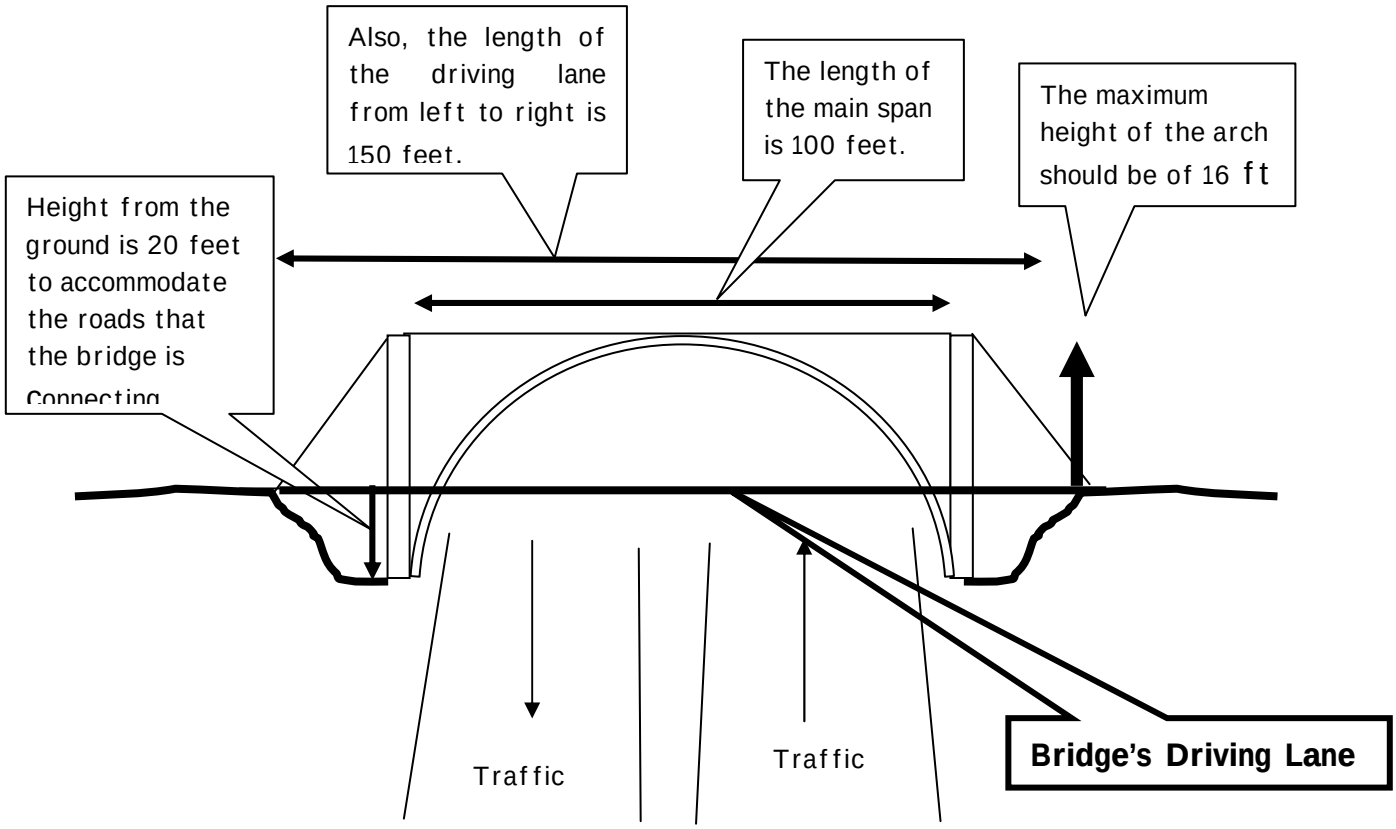
Name:_____Date:_____Period:_____

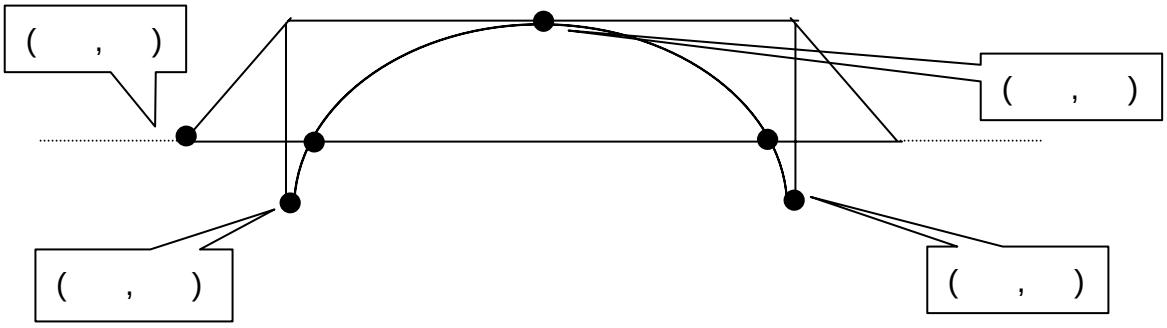
## 3.1.3 Traffic River

**Reflect and Apply**

The City of San Antonio is currently receiving bids on a contract to construct an over-pass for the flow of traffic over a busy road. They have selected your engineering firm to present a model for the new bridge and have selected a model similar to a bridge in the city of Dallas. Your firm has presented the picture of a recent bridge built. Because this bridge will be built at Loop 1604 and Blanco Road to help the flow of traffic along Blanco road over 1604, your firm has also presented the following modifications, along with the dimensions required.




**PART I** Label the coordinates for the following points.



**PART II:** Find the Equation of each of the following:

(a) The driving lanes (**Remember the driving lanes is at ground level**.)

(b) The vertical supports.

**PART III:** Information about **the arch**

(a) Is the parabola Concave Up/Down? _____

(b) Will the parabola have a minimum or a maximum? Justify your answer.

_____

_____

(c) What does that tell you about the "a" value of the equation? Justify your answer. _____

(d) What is the coordinate of the vertex? _____

(e) How many roots are there for this problem? _____Do you have enough information to find the coordinates? Justify your answer._____

_____

(f) What is another point that is part of the parabola? _____

(g) What is the equation of the parabola? _____

(h) Find the Roots for the arch. _____
(**HINT:** Set the function equal to zero!)