
Find the zeros for the following functions using your gaphing calculator. Round your answers to 3-decimal palces. Be sure to include all your work.

1. Compare the quantity in Column A with the quantity in Column B.

$$f(x) = 3(x+1)^2 - 2$$

Column A

The minimum value of $f(x)$

Column B

$f(5)$

[A] The quantity in Column A is greater. [B] The quantity in Column B is greater.

[C] The two quantities are equal.

[D] The relationship cannot be determined on the basis of the information supplied.

[1] _____

2. Find the vertex of the parabola $y = 4x^2 - x + 3$.

[A] $\left(-\frac{1}{8}, \frac{47}{16}\right)$

[B] $\left(\frac{1}{8}, \frac{47}{16}\right)$

[C] $\left(\frac{1}{8}, \frac{51}{16}\right)$

[D] $\left(-\frac{1}{8}, \frac{51}{16}\right)$

[2] _____

3. Identify the coordinate of teh minimum/maximum value of $y = x^2 - 3x - 4$.

[3] _____

4. Compare the quantity in Column A with the quantity in Column B.

minimum value of the function

Column A

Column B

$$f(x) = 3(x+1)^2 - 2$$

$$g(x) = 2(x-2)^2 - 2$$

[A] The quantity in Column A is greater. [B] The quantity in Column B is greater.

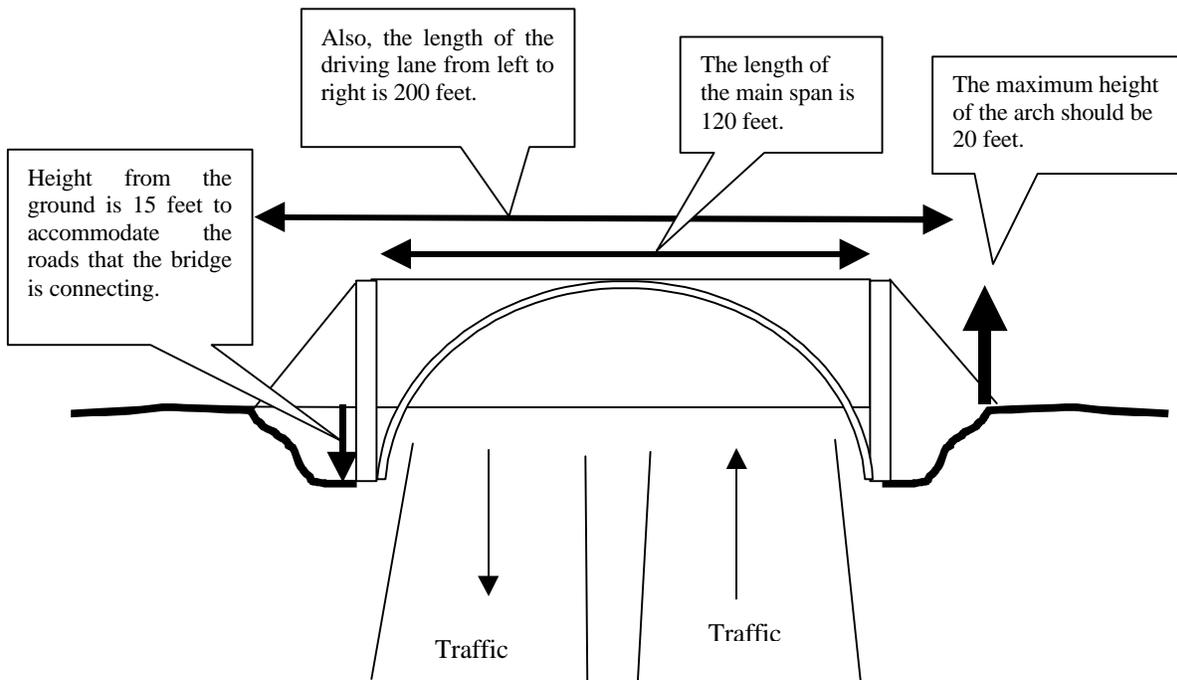
[C] The two quantities are equal.

[D] The relationship cannot be determined on the basis of the information supplied.

[4] _____

The bridge problem is worth 20 points total.

5. Your Engineering Firm has been asked to make a model of the new bridge at Loop 410 and Jones Maltsberger. Use the diagram below to find the information needed to build the model.
- (a) What is the equation of the driving lanes?
 - (b) What is the coordinate of the vertex of the arch?
 - (c) What are the coordinates of the intersections of the vertical supports and the arch?
 - (d) What is the equation of the arch?
 - (e) What is the equation of the left vertical support?
 - (f) At what point does the arch intersect the driving lanes?



[5]
