

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

*P.I. A.A.41: Determine the vertex and axis of symmetry of a parabola, given its equation*

1. Compare the quantity in Column A with the quantity in Column B.  
maximum value of the function

Column A

Column B

$$y = -x^2 + 3x - 1$$

$$y = -2x^2 - x + 5$$

- [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.

2. Compare the quantities in Column A and Column B.

Column A

Column B

the  $y$  - coordinate of the vertex of  
the graph of  $y = x^2 - 8x + 16$

the  $y$  - coordinate of the vertex of  
the graph of  $y = -x^2 - 8x + 16$

- [A] The quantity in Column A is greater.                      [B] The quantity in Column B is greater.  
[C] The quantities are equal.  
[D] The relationship cannot be determined from the information given.

3. Compare the quantities in Column A and Column B.

Column A

Column B

the  $x$  - coordinate of the vertex of  
the graph of  $y = x^2 + 4$

the  $x$  - coordinate of the vertex of  
the graph of  $y = x^2 - 4$

- [A] The quantity in Column A is greater.                      [B] The quantity in Column B is greater.  
[C] The quantities are equal.  
[D] The relationship cannot be determined from the information given.

4. This table shows the height in feet of some of the tallest buildings in the United States.

Building	City	Height (in ft)
Sears Tower	Chicago	1454
World Trade Center	New York City	1377
Empire State Building	New York City	1250
AMOCO	Chicago	1136
John Hancock Center	Chicago	1127
Chrysler	New York City	1046
First Interstate World Center	Los Angeles	1017

The path of a model rocket can be modeled by the function  $h(t) = -16t^2 + 100t$ . If the rocket is launched from the ground, on which of the buildings in this list could the rocket land?

[1] B

[2] B

[3] C

[4] none