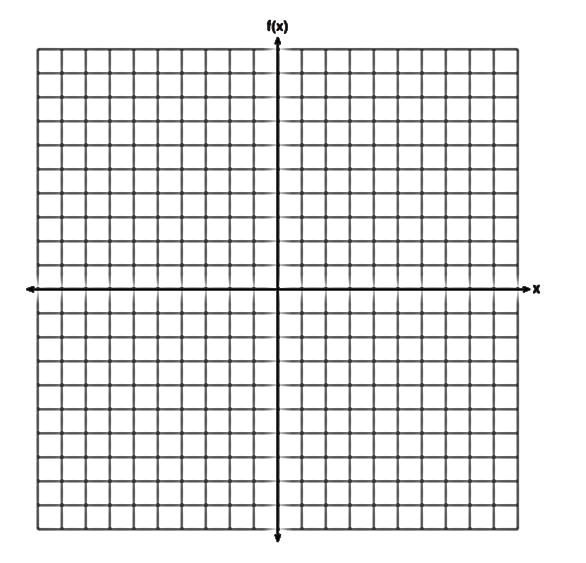
**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Unit 8- Quadratic Functions Review Alg 1**

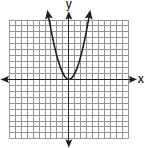
1. On the set of axes below, draw the graph of .



Is the vertex a maximum or a minimum?

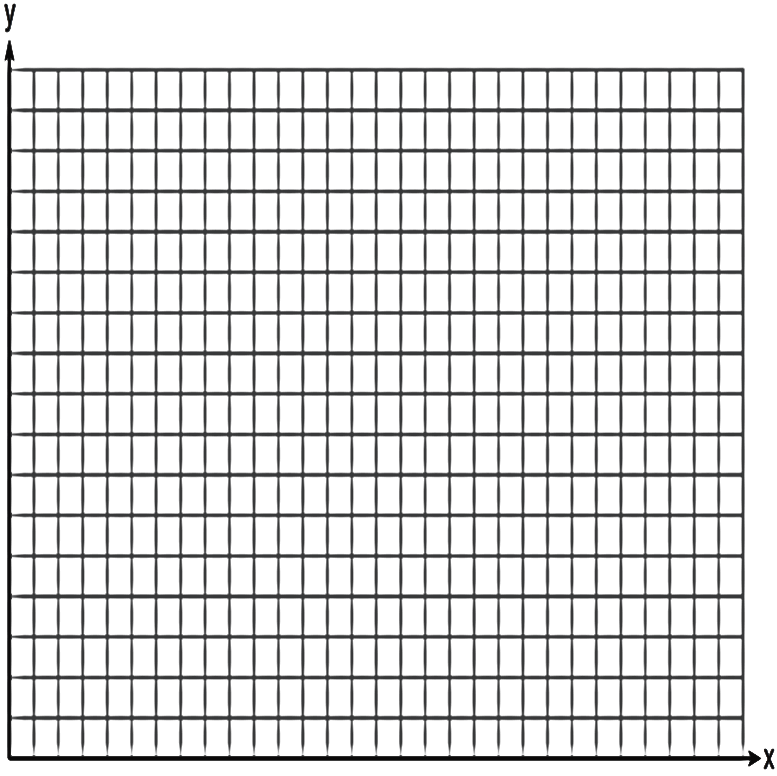
State the vertex of the equation.

1. The graph below shows the function .



On the same grid, **graph** the following, then state the **vertex** for each:

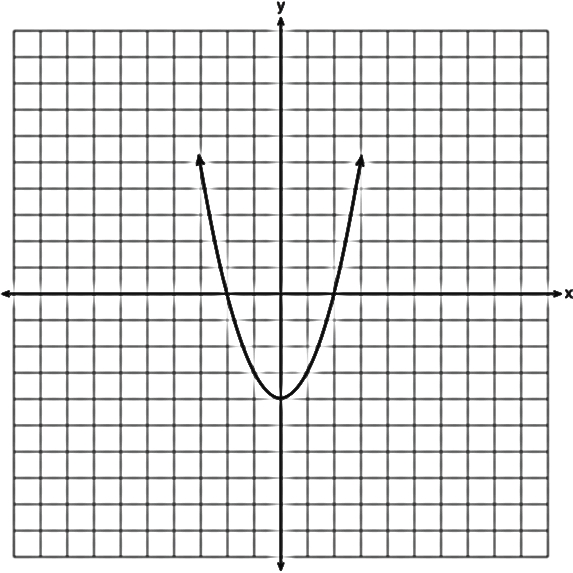
1. A football player attempts to kick a football over a goal post. The path of the football can be modeled by the function , where *x* is the horizontal distance from the kick, and is the height of the football above the ground, when both are measured in feet. On the set of axes below, graph the function over the interval .



Determine the vertex of .

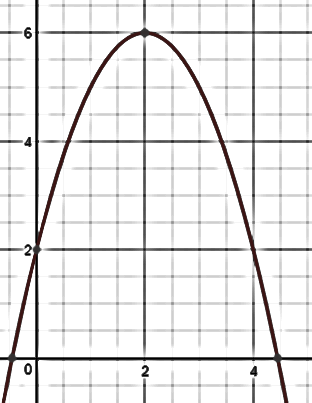
Interpret the meaning of this vertex in the context of the problem.

1. The graph of the function is shown below.



Describe what happens to the graph with each of the transformations:

1. The leading coefficient is multiplied by
2. The leading coefficient is multiplied by
3. Let be the function represented by the graph below.



Let be a function such that =.

State the maximum value for each and explain how your arrived at your answer.

Determine which function has the larger maximum value.

1. At an office supply store, if a customer purchases fewer than 10 pencils, the cost of each pencil is $1.75. If a customer purchases 10 or more pencils, the cost of each pencil is $1.25. Let *c* be a function for whichis the cost of purchasing *x* pencils, where *x* is a whole number.



Determine the difference in costs, *in dollars*, 8 pencils versus 15 pencils.

Determine the number of pencils that must be ordered for the cost to be $16.25. Explain how you arrived at this answer.

1. If , what is the value of ?

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1) |  | 2) |  | 3) |  | 4) |  |
|  |  |  |  |  |  |  |  |

1. A toy rocket is launched from the ground straight upward. The height of the rocket above the ground, in feet, is given by the equation , where *t* is the time in seconds. Determine the average speed of the rocket between 0 and 2 seconds after it was launched.
2. Determine whether each scenario is linear, quadratic, or exponential.
   1. Two friends are having a catch. The ball is thrown 20 feet between the two friends and reaches a maximum height of 18 feet halfway between the two friends.
   2. Money is invested in a bank account and earns interest at a rate of 0.03% compounded monthly.
   3. Navaeh is a baby sitter and makes $10 per hour.
3. The relationship of a woman’s shoe size and length of a woman’s foot, in inches, is given in the accompanying table.



1. The linear correlation coefficient for this relationship is

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1) | 1 | 2) |  | 3) | 0.5 | 4) | 0 |

1. Write the equation of the linear function.