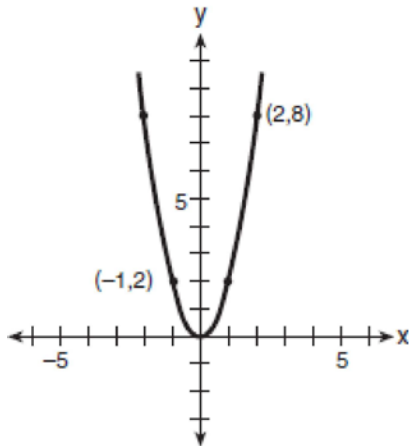


A.G.5: Graphing Quadratic Functions: Investigate and generalize how changing the coefficients of a function affects its graph

1 Which quadratic function is shown in the accompanying graph?

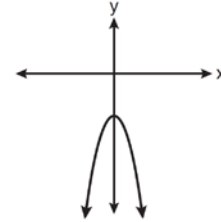


- 1) $y = -2x^2$
- 2) $y = 2x^2$
- 3) $y = -\frac{1}{2}x^2$
- 4) $y = \frac{1}{2}x^2$

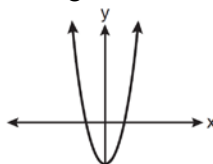
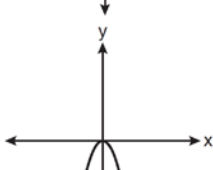
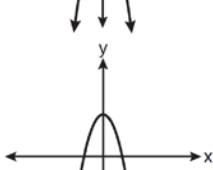
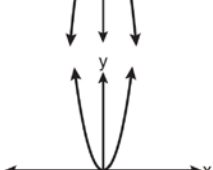
2 Which is the equation of a parabola that has the same vertex as the parabola represented by $y = x^2$, but is wider?

- 1) $y = x^2 + 2$
- 2) $y = x^2 - 2$
- 3) $y = 2x^2$
- 4) $y = \frac{1}{2}x^2$

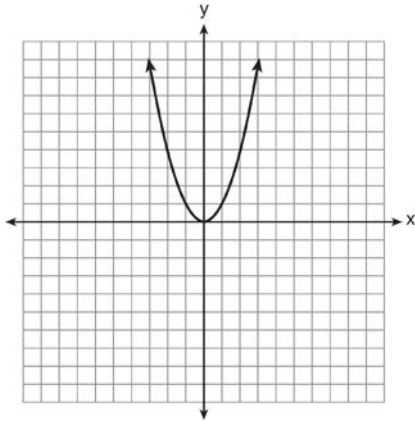
3 The diagram below shows the graph of $y = -x^2 - c$.



Which diagram shows the graph of $y = x^2 - c$?

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

- 4 The graph of the equation $y = x^2$ is shown below.



Which statement best describes the change in this graph when the coefficient of x^2 is multiplied by 4?

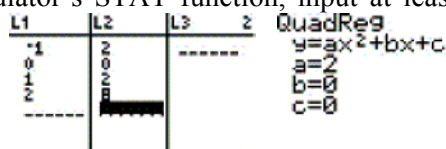
- 1) The parabola becomes wider.
 - 2) The parabola becomes narrower.
 - 3) The parabola will shift up four units.
 - 4) The parabola will shift right four units.
- 5 Melissa graphed the equation $y = x^2$ and Dave graphed the equation $y = -3x^2$ on the same coordinate grid. What is the relationship between the graphs that Melissa and Dave drew?
- 1) Dave's graph is wider and opens in the opposite direction from Melissa's graph.
 - 2) Dave's graph is narrower and opens in the opposite direction from Melissa's graph.
 - 3) Dave's graph is wider and is three units below Melissa's graph.
 - 4) Dave's graph is narrower and is three units to the left of Melissa's graph.
- 6 Consider the graph of the equation $y = ax^2 + bx + c$, when $a \neq 0$. If a is multiplied by 3, what is true of the graph of the resulting parabola?
- 1) The vertex is 3 units above the vertex of the original parabola.
 - 2) The new parabola is 3 units to the right of the original parabola.
 - 3) The new parabola is wider than the original parabola.
 - 4) The new parabola is narrower than the original parabola.
- 7 The graph of a parabola is represented by the equation $y = ax^2$ where a is a positive integer. If a is multiplied by 2, the new parabola will become
- 1) narrower and open downward
 - 2) narrower and open upward
 - 3) wider and open downward
 - 4) wider and open upward
- 8 How is the graph of $y = x^2 + 4x + 3$ affected when the coefficient of x^2 is changed to a smaller positive number?
- 1) The graph becomes wider, and the y -intercept changes.
 - 2) The graph becomes wider, and the y -intercept stays the same.
 - 3) The graph becomes narrower, and the y -intercept changes.
 - 4) The graph becomes narrower, and the y -intercept stays the same.

A.G.5: Graphing Quadratic Functions: Investigate and generalize how changing the coefficients of a function affects its graph

Answer Section

1 ANS: 2

Since the parabola is cupped up, $a > 0$, eliminating (1) and (3). The point (2, 8) satisfies only $y = 2x^2$. You can also use a graphing calculator's STAT function, input at least three ordered pairs, and calculate the quadratic



regression line of best fit. L2(5) = . ■

REF: 060404b

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|----------|---------------|
| 2 ANS: 4 | REF: 081322ia |
| 3 ANS: 1 | REF: 081015ia |
| 4 ANS: 2 | REF: 081414ia |
| 5 ANS: 2 | REF: 061113ia |
| 6 ANS: 4 | REF: 060829ia |
| 7 ANS: 2 | REF: 081218ia |
| 8 ANS: 2 | REF: 011330ia |