

Algebra 1 - Graphing Quadratic Functions and Transformations - Test

Common Core F-IF.C.7a, F-IF.C.8a, F-BF.B.3, A-SSE.B.3b · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

Take this 20-point, 45-minute test to measure your skill with graphing quadratic functions and transformations (F-IF.C.7a, F-IF.C.8a, F-BF.B.3, and A-SSE.B.3b). Read each question carefully, show your work, and check units and signs before you move on. If you get stuck, skip the question and return to it at the end.

About this test

- Grade: Algebra 1
- Chapter: Graphing Quadratic Functions and Transformations
- Standards: F-IF.C.7a, F-IF.C.8a, F-BF.B.3, A-SSE.B.3b
- Time: 45 minutes
- Total: 20 points

Question 1 - Vertex form [2 pts]

Identify the vertex, the axis of symmetry, and the direction of opening of $y = 2(x-3)^2 - 1$.

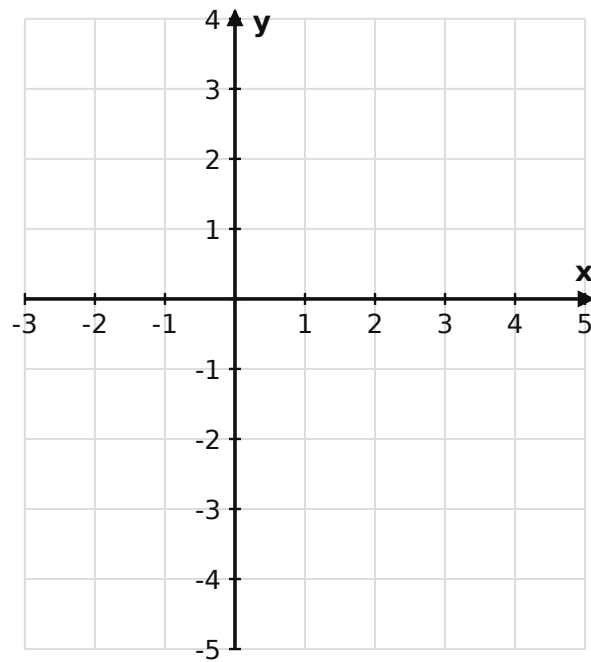
Question 2 - Vertex from standard form [2 pts]

Find the vertex of $y = x^2 - 10x + 16$.

Question 3 - Intercepts [2 pts]

Find the y-intercept and the x-intercepts of $y = x^2 - x - 6$.

Question 4 - Graph a parabola [2 pts]



Grid for question 4.

Graph $y = x^2 - 2x - 3$ and label the vertex.

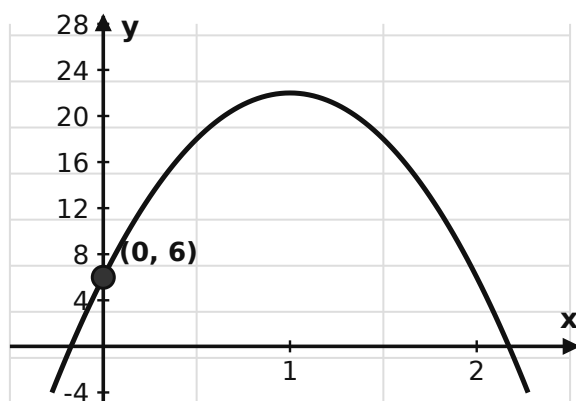
Question 5 - Describe transformations [2 pts]

Describe how the graph of $y = -(x+3)^2 + 2$ is obtained from $y = x^2$.

Question 6 - Complete the square [2 pts]

Write $y = x^2 + 4x + 1$ in vertex form.

Question 7 - Ball height [3 pts]

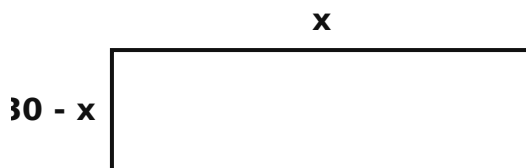


A ball thrown upward.

A ball's height in feet is $h = -16t^2 + 32t + 6$ after t seconds.

- Find the time of the maximum height. (1 point)
- Find the maximum height. (1 point)
- Find the height at $t = 0$. (1 point)

Question 8 - Largest area [3 pts]



A pen with 60 feet of fence.

A rectangular pen is built with 60 feet of fence. One side is x feet and the other is $30 - x$ feet.

- Write the area A as a function of x . (1 point)
- Find the value of x that gives the greatest area. (1 point)
- Find the greatest area. (1 point)

Question 9 - Compare functions [2 pts]

Which function has the greater minimum value: $f(x) = (x+1)^2 + 5$ or $g(x) = x^2 - 6x + 12$? Show your work.