

Review Lessons 4.1-4.3 Worksheet

Name: _____

Graph the function by completing the table. Identify the graph's axis of symmetry, vertex, whether the graph opens up or down, and its maximum/minimum value. Then compare the graph with the graph of $y = x^2$.

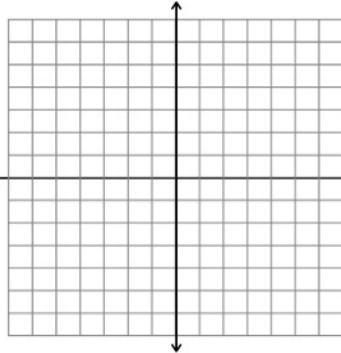
1.) $y = -3x^2 + 5$

AOS: _____

vertex: _____

opens: _____

max./min. value: _____



x					
y					

comparison to $y = x^2$:

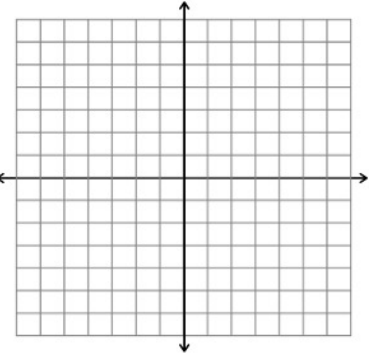
2.) $y = \frac{1}{4}x^2 + 1$

AOS: _____

vertex: _____

opens: _____

max./min. value: _____



x					
y					

comparison to $y = x^2$:

Identify the graph's axis of symmetry, vertex, y-intercept, whether the graph opens up or down, and its maximum/minimum value. Then graph the function by completing the table.

3.) $y = -x^2 - 4x - 4$

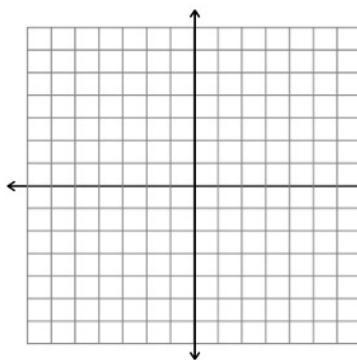
AOS: _____

vertex: _____

y-int: _____

opens: _____

max./min. value: _____



x					
y					

work:

4.) $y = 3x^2 - 18x + 15$

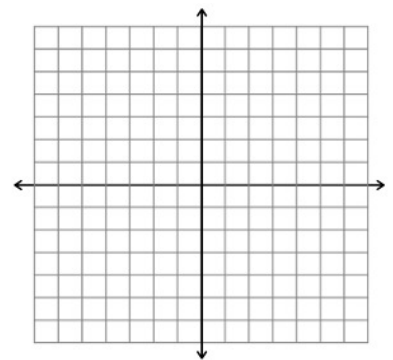
AOS: _____

vertex: _____

y-int: _____

opens: _____

max./min. value: _____



y-axis by 2

x					
y					

work:

5.) $y = -\frac{1}{4}(x + 2)^2 + 1$

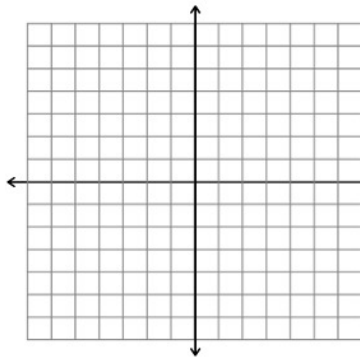
AOS: _____

vertex: _____

y-int: _____

opens: _____

max./min. value: _____



x					
y					

work:

6.) $y = (x + 4)^2$

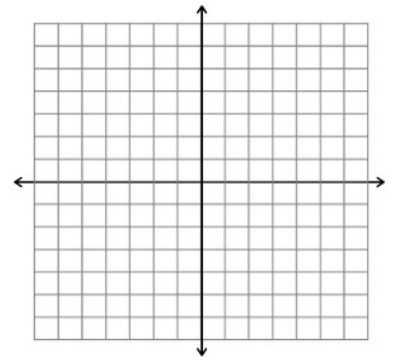
AOS: _____

vertex: _____

y-int: _____

opens: _____

max./min. value: _____



x					
y					

work:

7.) $y = (x - 3)(x - 7)$

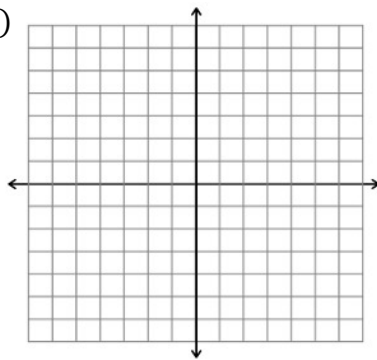
AOS: _____

vertex: _____

y-int: _____

opens: _____

max./min. value: _____



x					
y					

work:

8.) $f(x) = 2(x - 4)(x + 1)$

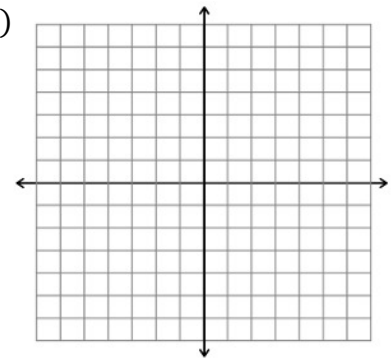
AOS: _____

vertex: _____

y-int: _____

opens: _____

max./min. value: _____



y-axis by 2

x					
y					

work:

Write the quadratic in function form.

9.) $y = -3(x + 5)^2 - 1$

10.) $y = -7(x - 6)(x + 1)$

Factor the expression completely, if possible.

11.) $x^2 - 4x + 4$

12.) $b^2 - 400$

13.) $s^2 - 26s + 169$

14.) $m^2 + 8m - 65$

Solve the equation using factoring.

15.) $x^2 - 11x + 30 = 0$

16.) $m^2 = 7m$

17.) $r^2 + 2r = 80$

Find the zeros of the quadratic function.

18.) $y = x^2 - 8x + 16$

19.) $f(x) = n^2 - 12n$

20.) $y = x^2 - 64$

- 21.) The arch of the Gateshead Millennium Bridge forms a parabola with equation $y = -0.016(x - 52.5)^2 + 45$ where x is the horizontal distance (in meters) from the arch's left end and y is the distance (in meters) from the base of the arch.

What is the width of the arch?

- 22.) Although a football field appears to be flat, its surface is actually shaped like a parabola so that rain runs off to both sides. The cross section of a field with synthetic turf can be modeled by

$$y = -0.000234x(x - 160)$$

where x and y are measured in feet.

a.) What is the field's width?

b.) What is the maximum height of the field's surface?

