

**Note: If needed, you can round your x-intercepts to the nearest hundredth.**

Write in vertex form.

1.  $y = x^2 - 6x + 5$

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

2.  $y = x^2 + 16x + 71$

$y = (x+8)^2 + 7$

3.  $y = -x^2 - 14x - 59$

$y = -(x+7)^2 - 10$

4.  $y = 2x^2 - 4x + 5$

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

5.  $y = 7x^2 - 14x - 21$

$y = 7(x-1)^2 - 28$

6.  $y = -\frac{1}{2}x^2 - 4x - 9$

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

For each of the following, identify the transformations and characteristics of the equations and then graph.

7.  $y = -2(x - 1)^2 - 1$

Transformations:

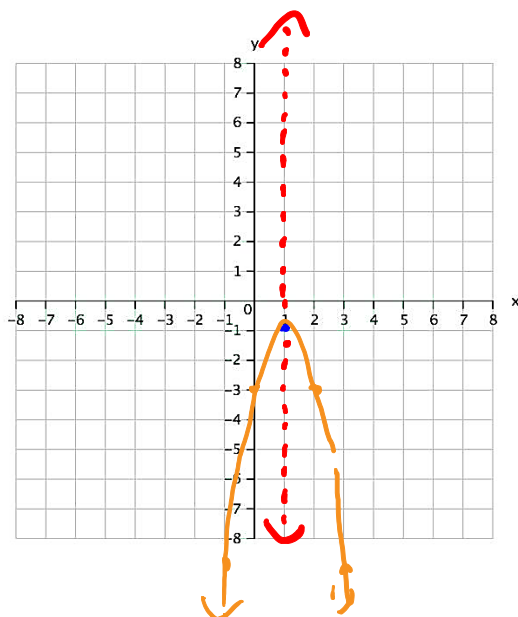
Vertex:  $(1, -1)$

Min or Max? Max

Aos:  $x=1$

y-intercept  $(0, -3)$

x-intercepts none



8.  $y = -(x - 4)^2 + 2$

Transformations:

Vertex:  $(4, 2)$

Min or Max? Max

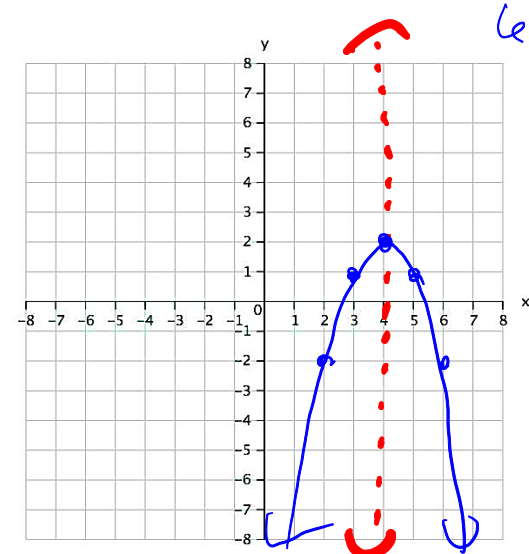
Aos:  $x=4$

y-intercept  $(0, -14)$

x-intercepts two

x	y
-1	-9
0	-3
1	-1
2	-3
3	-9

x	y
2	-2
3	1
4	2
5	1
6	-2



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

Transformations:

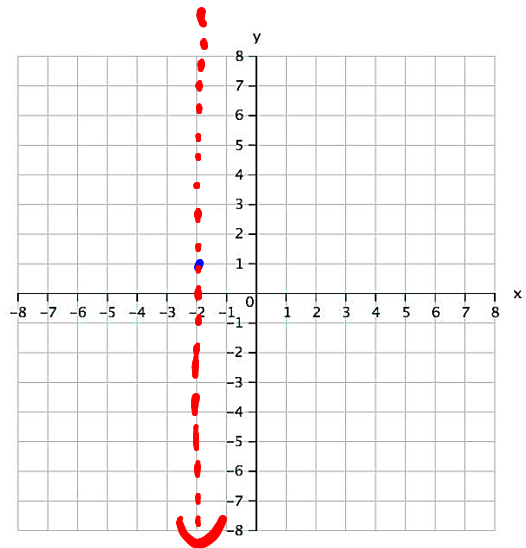
Vertex: (-2, 1)

Min or Max? \_\_\_\_\_

Aos:  $x = -2$

y-intercept (0, 13)

x-intercepts \_\_\_\_\_



10.  $y = 2(x + 3)^2 - 8$

Transformations:

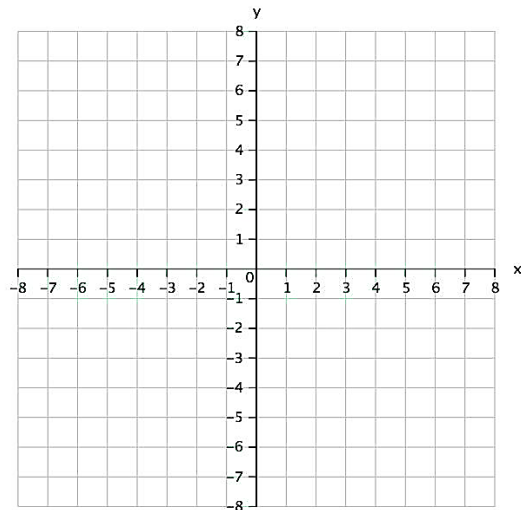
Vertex: \_\_\_\_\_

Min or Max? \_\_\_\_\_

Aos: \_\_\_\_\_

y-intercept \_\_\_\_\_

x-intercepts \_\_\_\_\_



11. Optima has an order for 3 quilt squares, with the dimension of each square increased by 4 inches. Draw a representation for the area, and then write two equivalent expressions to represent the scenario.

**Factor the following:**

12.  $x^2 - 22x + 72$

13.  $4x^2 - 49$

14.  $3x^2 - 13x - 10$

**Based on the description of transformations from the parent function, write an equation representing the transformations in vertex form. All are representing QUADRATIC FUNCTIONS!**

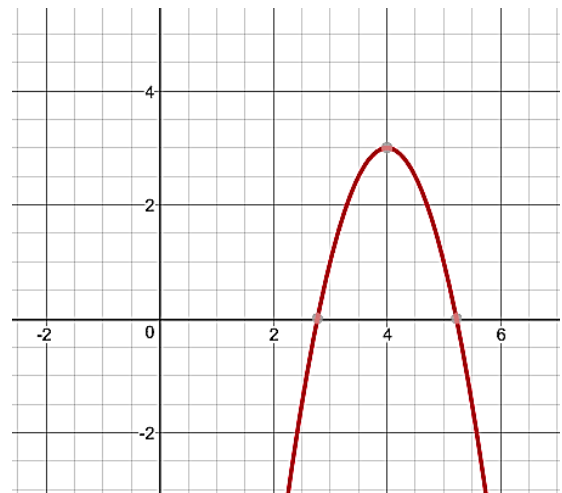
15. A vertical stretch of 8, shift right 4, up 7.

16. Reflection over the x-axis, vertical compression (or “shrink”) by  $\frac{1}{5}$ , shift left 6, down 9.

17. Vertical compression (“or shrink”) of  $\frac{1}{9}$ , shift left 7, up 12.

**Given the following graph, complete the following:**

18. Standard Form Equation: \_\_\_\_\_  
 Vertex Form Equation: \_\_\_\_\_  
 Vertex: \_\_\_\_\_  
 X-intercepts: \_\_\_\_\_  
 Y-intercept: \_\_\_\_\_  
 Minimum or Maximum? \_\_\_\_\_



**Given the following table, complete the following:**

19. Standard Form Equation: \_\_\_\_\_  
 Vertex Form Equation: \_\_\_\_\_  
 Vertex: \_\_\_\_\_  
 X-intercepts: \_\_\_\_\_  
 Y-intercept: \_\_\_\_\_  
 Minimum or Maximum? \_\_\_\_\_

x	y
1	.2
2	1.2
3	1.8
4	2
5	1.8
6	1.2
7	.2

x	y
1	.2
2	1.2
3	1.8
4	2
5	1.8
6	1.2
7	.2