

Graph and describe the transformation from its parent function

1.  $g(x) = -1/2 x + 3$

2.  $h(x) = -2(x - 1)^2 + 6$

3.  $h(x) = 1/2 |x + 4| - 1$

Write a new function  $g(x)$  that represents the indicated transformations of the graph of  $f(x)$

4.  $f(x) = x^2$  Vertical shrink of factor  $1/3$   
followed by reflection in the x-axis

5.  $f(x) = 2|x| + 3$  translate right 2 units  
and down 5 up

Use completing the square to write the equation in vertex form.

Give the vertex. State whether this is a maximum or minimum and give its value.

6.  $y = x^2 - 12x + 5$

7.  $y = 2x^2 + 6x + 8$

Vertex form:

Vertex:

Max or min?:

Vertex form:

Vertex:

Max or min?:

Write a quadratic equation with the following characteristics.

8. Contains  $(-7, -15)$  and has vertex  $(-5, 9)$

9. x-intercepts 5 and -1 passes through  $(4, 3)$

You toss a ball into the air. The path of the ball can be modeled by  $h(t) = -2t^2 + 14t + 2$  where  $t$  is seconds and  $h(t)$  is the height.

10. What is the ball's maximum height? \_\_\_\_\_  
(give answer to two decimal places if necessary)

11. You catch it after 7 seconds. How high was the ball when you caught it? \_\_\_\_\_