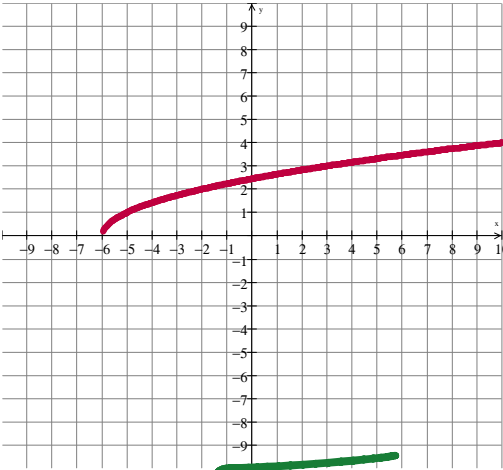


Algebra 2 H
Shifting and Reflecting

Name:

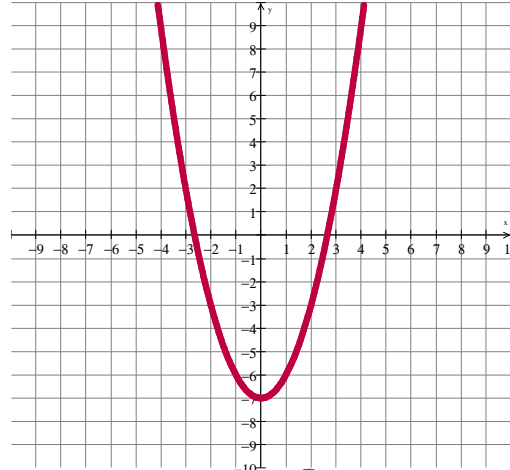
I. Write an equation for the graphs below. Think of the parent function first!

a.



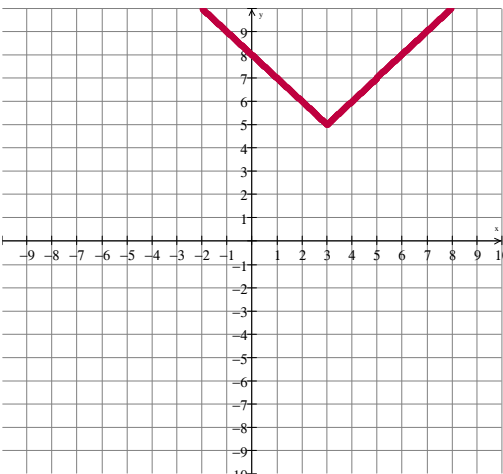
$$y = \sqrt{x+6}$$

b.



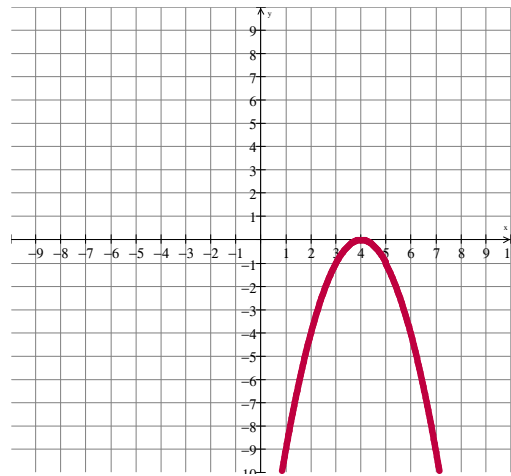
$$y = x^2 - 7$$

c.



$$y = |x-3| + 5$$

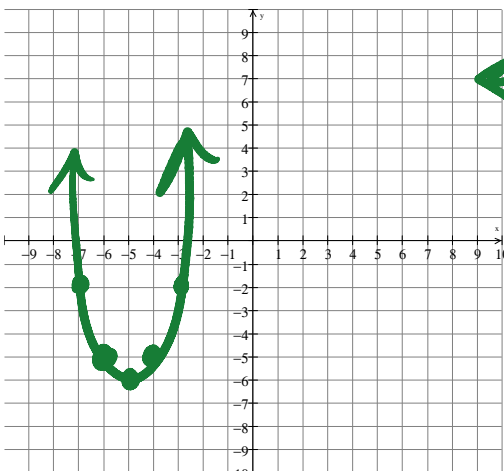
d.



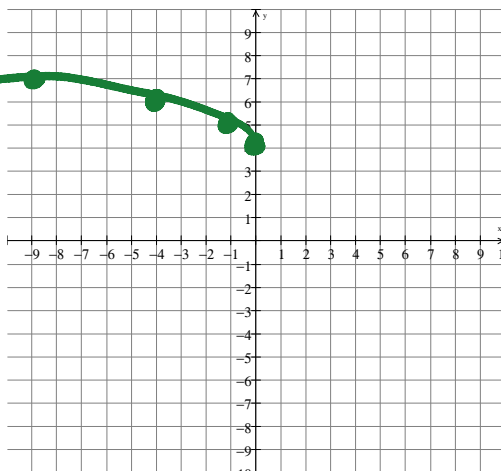
$$y = -(x-4)^2$$

II. Graph the equations below.

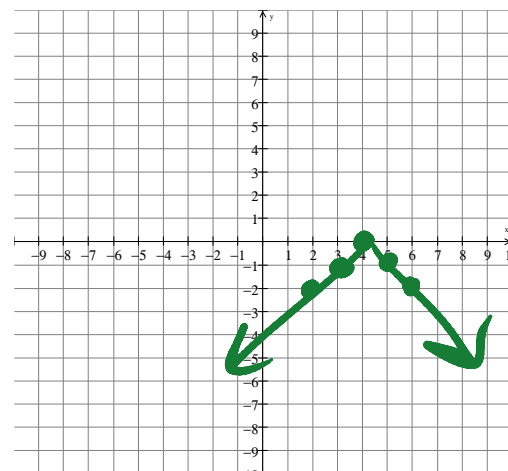
a. $y = (x+5)^2 - 6$



b. $y = \sqrt{-x} + 4$



c. $y = -|x-4|$



III. Identify the parent function, **and** then describe how it is transformed (be specific about the direction and number of units).

a. $y = x^2 + 6$

parent: x^2
up 6

b. $y = |x| - 4$

parent: $|x|$
down 4

c. $y = \sqrt{x+5}$

parent: \sqrt{x}
left + 5

d. $y = (x-2)^3 + 6$

parent: x^3
Right 2, up 6

e. $y = 2^{x-8} + 1$

parent: 2^x
Right 8, up 1

f. $y = |x-9| - 17$

parent: $|x|$
Right 9, down 17

g. $y = (-x)^2$

parent: x^2
Reflect across y-axis

h. $y = -x^3$

parent: x^3
Reflect across x-axis

i. $y = \sqrt{-x} + 7$

parent: \sqrt{x}
Reflect across y-axis up 7

IV. Write an equation based on the transformation described.

a. $y = \sqrt{x}$ is shifted 4 to the right

$$y = \sqrt{x-4}$$

b. $y = x^2$ is shifted down 8 units and to the left 1 unit

$$y = (x+1)^2 - 8$$

c. $y = x^3$ is reflected across the y-axis and down 12

$$y = (-x)^3 - 12$$

d. $y = |x|$ is shifted up 4 and to the left 6

$$y = |x+6| + 4$$

e. $y = 2^x$ is reflected across the x-axis and right 7

$$y = -2^{x-7}$$

f. $y = \sqrt{x}$ is shifted up 3 and left 10

$$y = \sqrt{x+10} + 3$$