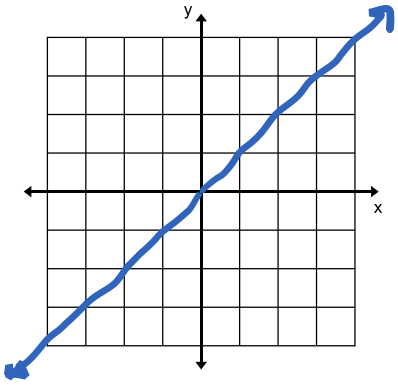
Algebra 2 CC
Parent Functions

Name _____

The following graphs represent the most commonly used functions in algebra.

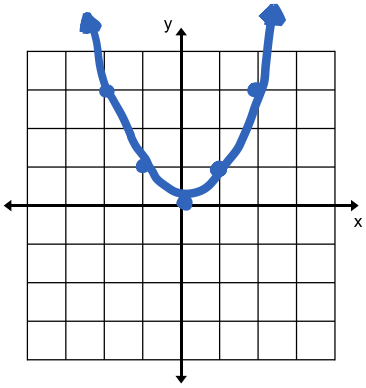
1.) Linear

$y = x$



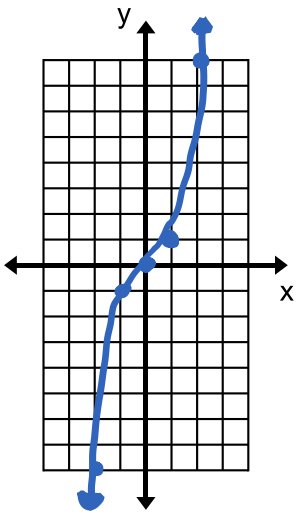
2.) Quadratic

$y = x^2$



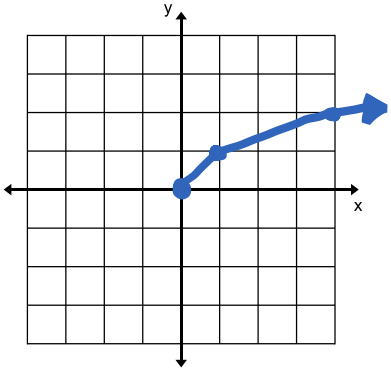
3.) Cubic

$y = x^3$



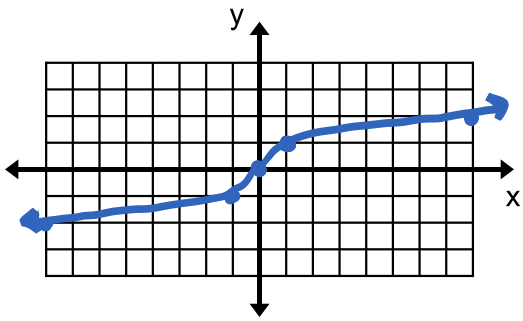
4.) Square Root

$y = \sqrt{x}$



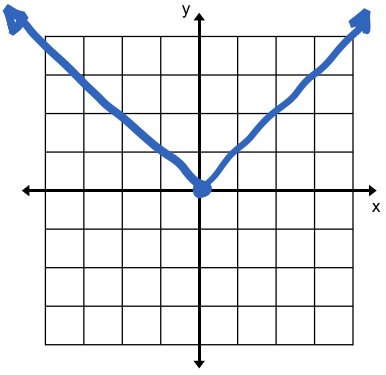
5.) Cube Root

$y = \sqrt[3]{x}$



6.) Absolute Value

$y = |x|$



Given the parent function: $y = x^2$ **describe the following translations**

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

up 3

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

down 4

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

left 5

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

right 1

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

left 3
up 1

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

right 4
up 2

Given the parent function: $y = \sqrt{x}$ **describe the following translations**

7.) $y = -\sqrt{x}$

reflect over x-axis

$\frac{-y}{-1} = \frac{\sqrt{x}}{-1}$

$y = -\sqrt{x}$

8.) $y = \sqrt{-x}$

reflect over y-axis

Without a calculator, determine the transformation of the function.

9.) Given: $f(x)=x^3$

a. $f(x)=(x+4)^3$

left 4

b. $f(x)=(-x)^3+1$

reflect over y-axis

up 1

10.) Given: $y=\sqrt{x}$

a. $y=-\sqrt{x}-3$

reflect over x-axis

down 3

b. $y=\sqrt{x-5}+1$

right 5

up 1

11.) Describe the effect that each transformation below has the function $f(x)=|x|$, where $a > 0$.

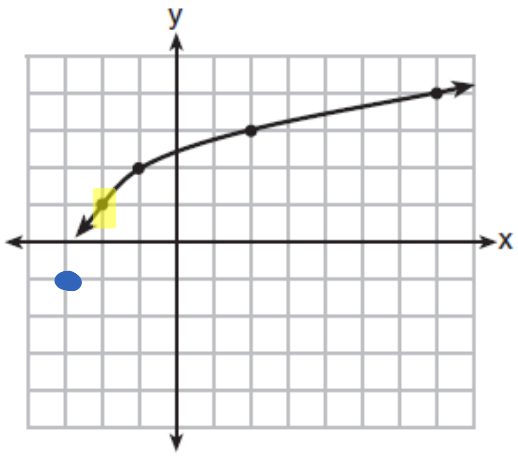
a. $g(x)=|x-a|$

right a units

b. $h(x)=|x|-a$

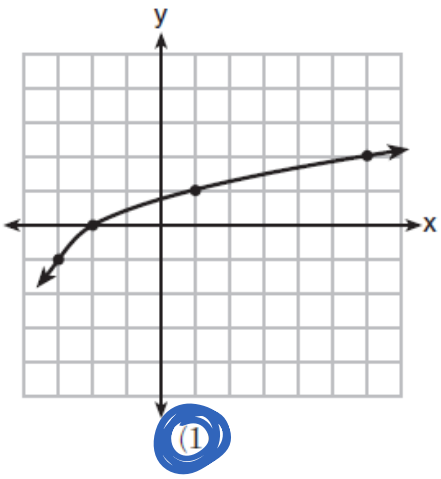
down a units

12.) The graph of $y = f(x)$ is shown below.

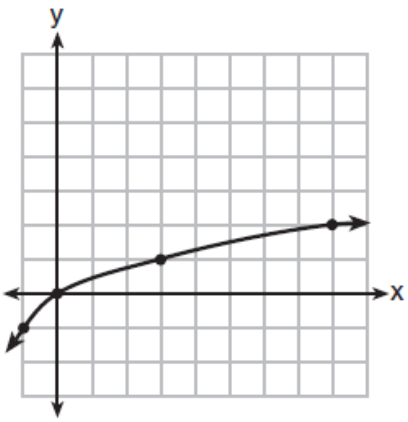


What is the graph of $y = f(x+1)-2$?

left 1, down 2



(1)



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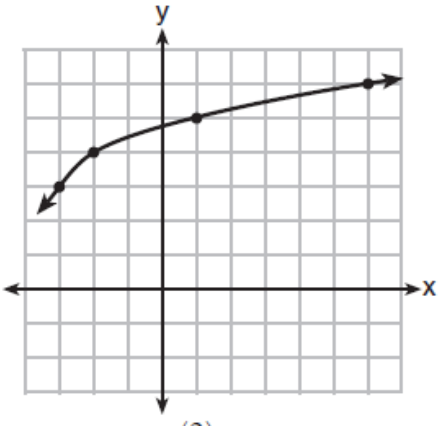

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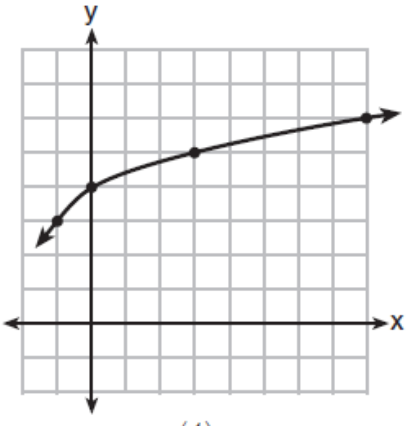

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