MATH 0482
Chapter 5.1 Roots and Radicals

SQUARE ROOT OF A NUMBER:
A NUMBER MULTIPLIED BY ITSELF YIELDS THE ORIGINAL NUMBER

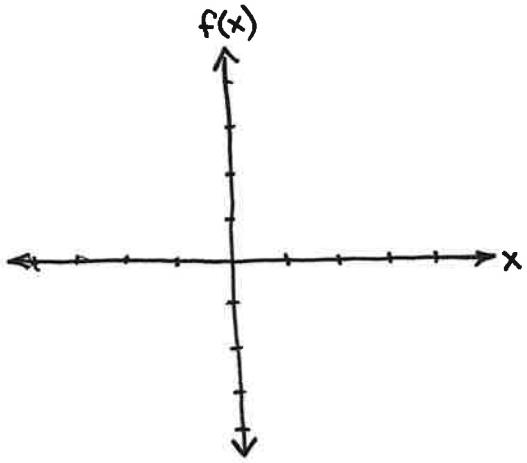
$\sqrt{25}$

EVALUATE.

$\sqrt{121}$ $\quad -\sqrt{81}$ $\quad \sqrt{(x-2)^2}$

SQUARE ROOT FUNCTION:

$f(x) = \sqrt{x}$



FIND THE DOMAIN OF $f(x) = \sqrt{2x+3}$.

CUBE ROOT OF A NUMBER:

A NUMBER MULTIPLIED BY ITSELF THREE TIMES YIELDS THE ORIGINAL NUMBER

$\sqrt[3]{64}$

$\sqrt[3]{-64}$

EVALUATE.

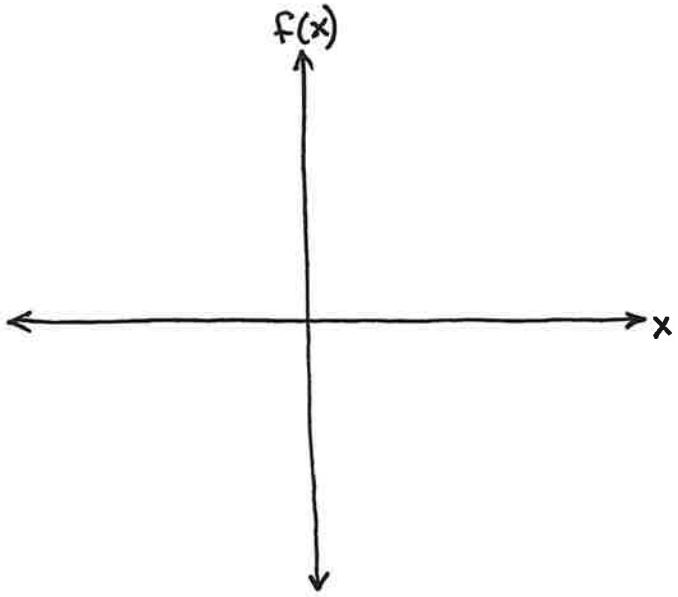
$\sqrt[3]{8}$ $\sqrt[3]{0}$ $\sqrt[3]{\frac{1}{27}}$ $\sqrt[3]{-1}$ $\sqrt[3]{-125}$

SIMPLIFY.

$\sqrt[3]{(y-7)^3}$

CUBE ROOT FUNCTION:

$f(x) = \sqrt[3]{x}$

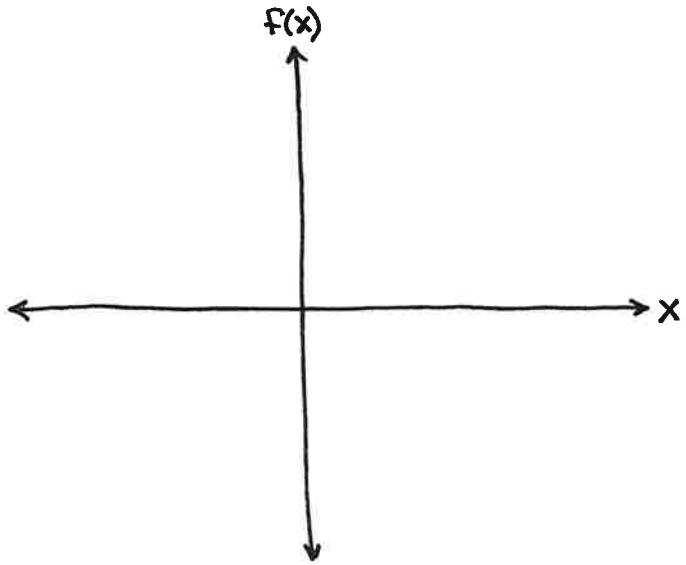


$f(x) = \sqrt[3]{x+1} + 2$

FIND THE FOLLOWING.

$g(-9)$ $g(-2)$ $g(-1)$ $g(0)$

SKETCH THE GRAPH.



N^TH ROOT OF A NUMBER

$\sqrt{a^2}$ a IF $a \geq 0$, $|a|$ IF $a < 0$

$\sqrt[3]{a^3}$ a

$\sqrt[N]{a^N}$ $|a|$ N IS EVEN, a N IS ODD

SIMPLIFY.

$\sqrt[4]{81}$ $\sqrt[5]{32}$ $\sqrt[7]{1}$ $\sqrt[4]{\frac{1}{16}}$

Simplify.

$\sqrt[4]{(-10)^4}$ $\sqrt[4]{-10^4}$ $\sqrt[6]{(2y+1)^6}$

$\sqrt[5]{(-10)^5}$ $\sqrt[5]{-32}$ $\sqrt[7]{(2y+1)^7}$

Simplifying Radicals:

Product:

$$\sqrt[N]{A \cdot B} = \sqrt[N]{A} \cdot \sqrt[N]{B}$$

Quotient:

$$\sqrt[N]{\frac{A}{B}} = \frac{\sqrt[N]{A}}{\sqrt[N]{B}}$$

Simplify.

$\sqrt{150}$

$\sqrt[3]{160}$

$\sqrt[5]{-320}$

$\sqrt[3]{-\frac{8}{64}}$