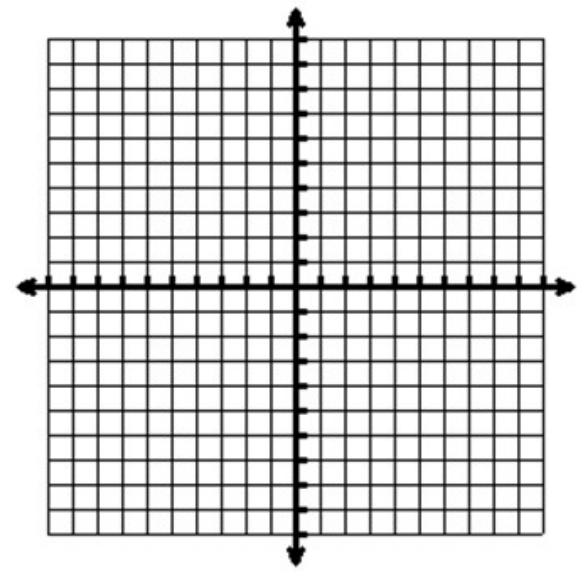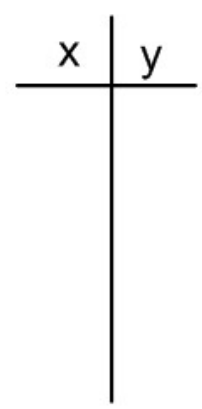## Steps to graphing ALL graph types

1. Get the function in the correct form - make sure if there is a "b" that it has been factored out.

2. Give a description of its transformations compared to the parent graph.

3. Write down the parent table.

4. Adjust parent table by multiplying "a" and "1/b"
   Reminder: "a" affects the range (Ys)
                "1/b" affects the domain (Xs)

5. Adjust the new table by add/sub "h" and "k"
   Reminder: pull h (*opposite*) and k (*same*)
              add/sub "h" to x-values
              add/sub "k" to y-values

6. **Plot your points and give the characteristics**
   ## Standard Forms

$$y = a\sqrt[3]{b(x-h)} + k$$

$$y = a\sqrt{b(x-h)} + k$$

For all types

-a:_____

a >1: _____

a <1: _____

-b:_____

1/b >1:_____

1/b <1: _____

h: _____

k: _____

Square Root $y = \sqrt{x}$

x	y

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

x	y

Characteristics

Vertex:

Domain: Range:

Max: Min:

Int of Inc: Int of Dec:

x-intercept: y-intercept:

end behavior:

Characteristics

Vertex:

Domain: Range:

Max: Min:

Int of Inc: Int of Dec:

x-intercept: y-intercept:

end behavior:

Reflections of $\sqrt{x}$

$\sqrt{x}$

D:
R:
Max/Min:
Inc/Dec/Const:

End:

$-\sqrt{x}$

D:
R:
Max/Min:
Inc/Dec/Const:

End:

$\sqrt{-x}$

D:
R:
Max/Min:
Inc/Dec/Const:

End:

$-\sqrt{-x}$

D:
R:
Max/Min:
Inc/Dec/Const:
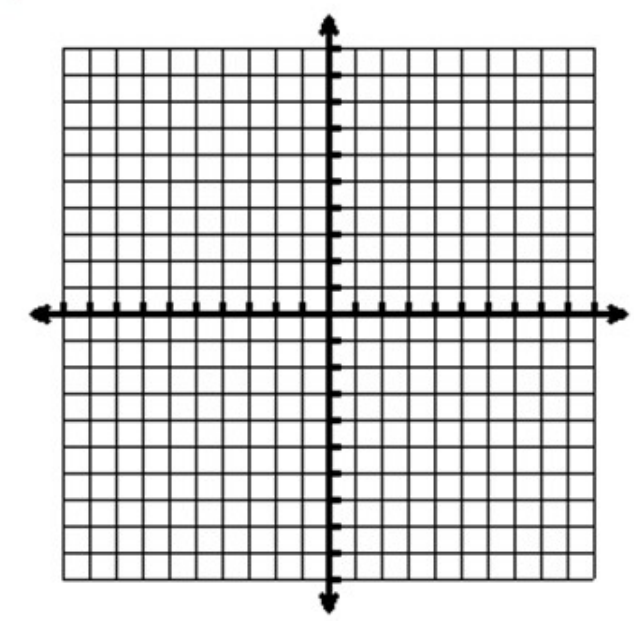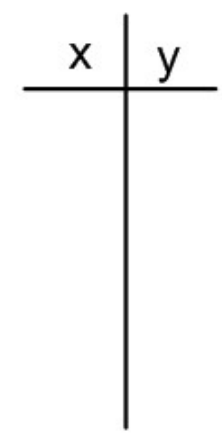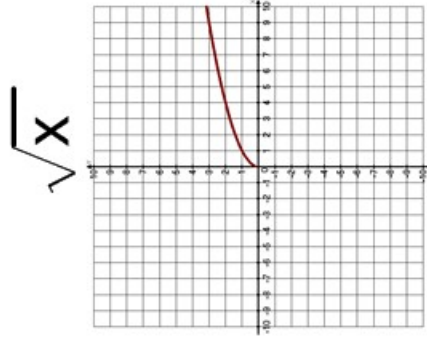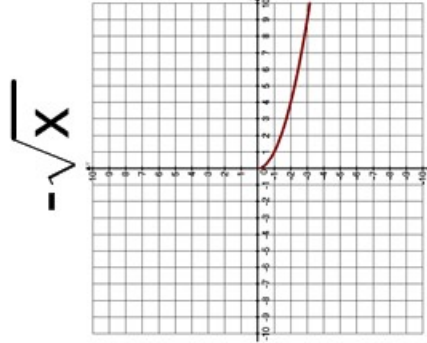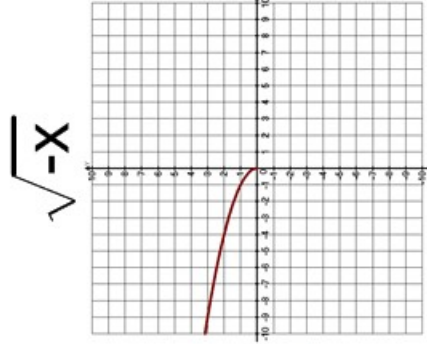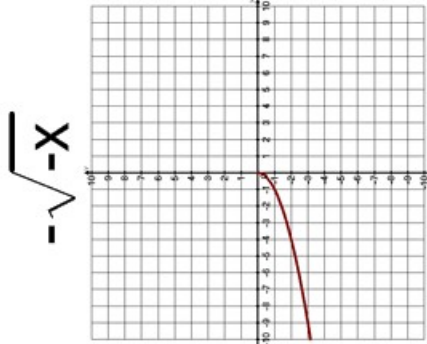
End:

Reflections of $\sqrt{x}$

$\sqrt{x}$

D:
R:
Max/Min:
Inc/Dec/Const:

End:

$-\sqrt{x}$

D:
R:
Max/Min:
Inc/Dec/Const:

End:

$\sqrt{-x}$

D:
R:
Max/Min:
Inc/Dec/Const:
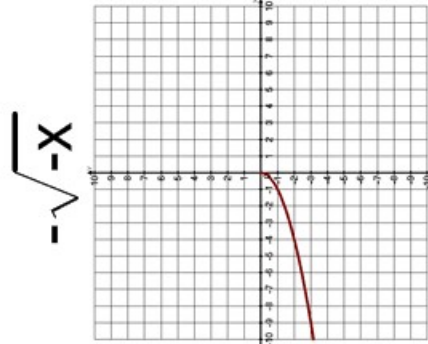
End:

$-\sqrt{-x}$

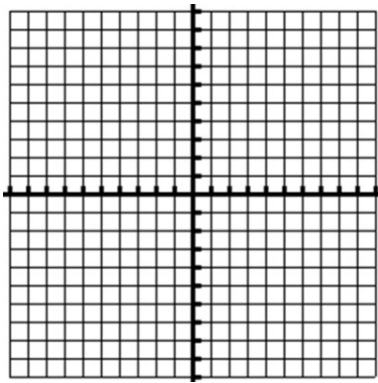

D:
R:
Max/Min:
Inc/Dec/Const:

End:

$f(x) = \sqrt[3]{-x} + 5$

x	y

x	y

Vertex: _____   Extrema: _____

Domain: _____   Range: _____

Int of Inc: _____   Int of Dec: _____

X-Intercept: _____   Y-Intercept: _____

End Behavior: _____
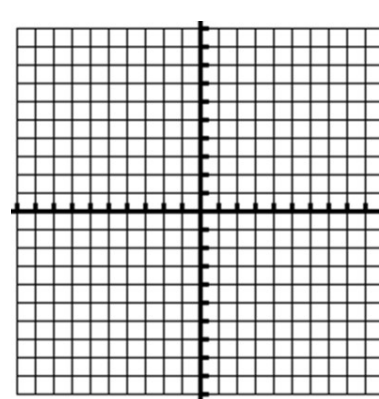
_____

$h(x) = \sqrt{-3x} + 5$

x	y

x	y

Vertex: _____   Extrema: _____

Domain: _____   Range: _____

Int of Inc: _____   Int of Dec: _____

X-Intercept: _____   Y-Intercept: _____

End Behavior: _____

_____

$g(x) = -\dfrac{1}{2}\sqrt{x+4}$

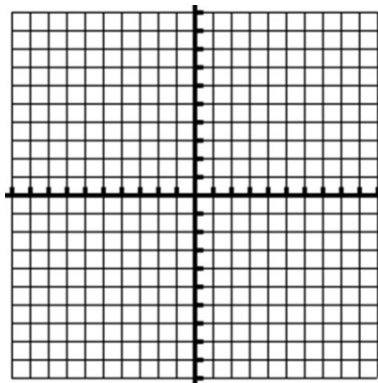| x	y

x	y

Vertex: _____   Extrema: _____

Domain: _____   Range: _____

Int of Inc: _____   Int of Dec: _____

X-Intercept: _____   Y-Intercept: _____

End Behavior: _____

_____

$f(x) = \sqrt{x+4} + 6$

x	y

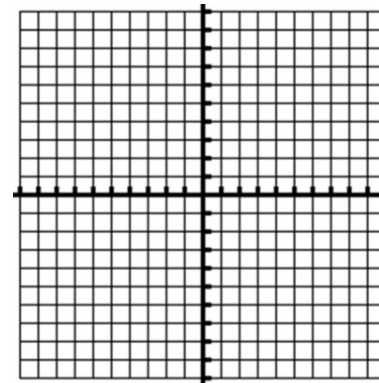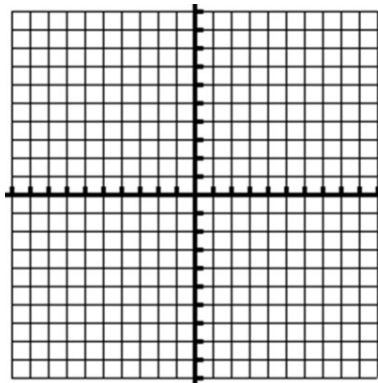| x	y

Vertex: _____   Extrema: _____

Domain: _____   Range: _____

Int of Inc: _____   Int of Dec: _____

X-Intercept: _____   Y-Intercept: _____

End Behavior: _____

_____

$g(x) = \tfrac{1}{4}\sqrt[3]{x+1} - 2$

x	y

x	y

Vertex: _____   Extrema: _____

Domain: _____   Range: _____

Int of Inc: _____   Int of Dec: _____

X-Intercept: _____   Y-Intercept: _____

End Behavior: _____

_____