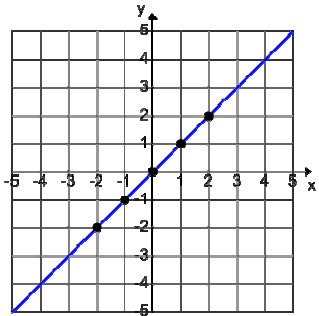
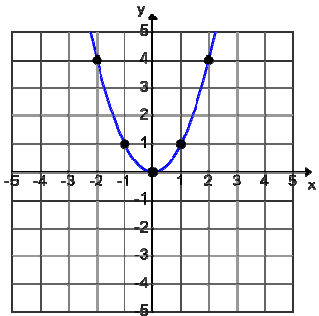
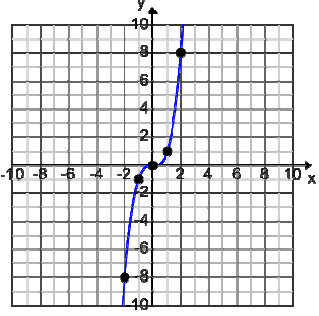
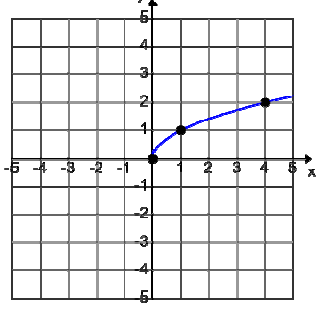


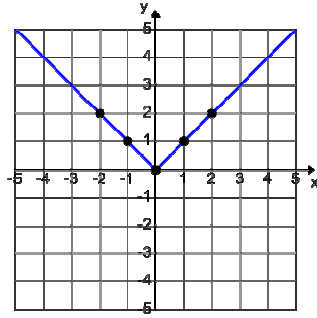
Tips for Graphing Parent Functions

Name	Parent Function	Graph	Point Patterns												
Linear	$y = x$		From the y-intercept, use the slope to find the next few points.												
Quadratic	$y = x^2$		<table border="1" data-bbox="954 719 1214 954"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> </tr> <tr> <td>-1</td> <td>1</td> </tr> <tr> <td>2</td> <td>4</td> </tr> <tr> <td>-2</td> <td>4</td> </tr> </tbody> </table> <p>From the vertex: Over 1 up 1 Over 2 up 4</p> <p>Repeat on other side of the y-axis.</p>	x	y	0	0	1	1	-1	1	2	4	-2	4
x	y														
0	0														
1	1														
-1	1														
2	4														
-2	4														
Cubic	$y = x^3$		<table border="1" data-bbox="954 1093 1214 1328"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> </tr> <tr> <td>2</td> <td>8</td> </tr> <tr> <td>-1</td> <td>-1</td> </tr> <tr> <td>-2</td> <td>-8</td> </tr> </tbody> </table> <p>From the vertex: Over 1 up 1 Over 2 up 8</p> <p>Repeat using negative numbers on other side of the y-axis.</p>	x	y	0	0	1	1	2	8	-1	-1	-2	-8
x	y														
0	0														
1	1														
2	8														
-1	-1														
-2	-8														
Radical	$y = \sqrt{x}$		<table border="1" data-bbox="954 1473 1214 1626"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> </tr> <tr> <td>4</td> <td>2</td> </tr> </tbody> </table> <p>From the vertex: Over 1 up 1 Over 4 up 2</p>	x	y	0	0	1	1	4	2				
x	y														
0	0														
1	1														
4	2														

	$y = \sqrt[3]{x}$		<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> </tr> <tr> <td>8</td> <td>2</td> </tr> <tr> <td>-1</td> <td>-1</td> </tr> <tr> <td>-8</td> <td>-2</td> </tr> </tbody> </table>	x	y	0	0	1	1	8	2	-1	-1	-8	-2	<p>From the vertex: Over 1 up 1 Over 8 up 2</p> <p>Repeat using negative numbers on the other side of the y-axis.</p>		
x	y																	
0	0																	
1	1																	
8	2																	
-1	-1																	
-8	-2																	
Rational	$y = \frac{1}{x}$		<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> </tr> <tr> <td>2</td> <td>1/2</td> </tr> <tr> <td>1/2</td> <td>2</td> </tr> <tr> <td>-1</td> <td>-1</td> </tr> <tr> <td>-2</td> <td>-1/2</td> </tr> <tr> <td>-1/2</td> <td>-2</td> </tr> </tbody> </table>	x	y	1	1	2	1/2	1/2	2	-1	-1	-2	-1/2	-1/2	-2	<p>From the intersection of the asymptotes: Over 1 up 1 Over 2 up 1/2 Over 1/2 up 2</p> <p>Repeat using negative numbers on the other side of the y-axis.</p>
x	y																	
1	1																	
2	1/2																	
1/2	2																	
-1	-1																	
-2	-1/2																	
-1/2	-2																	
Exponential	$y = b^x$ $y = 3^x$ is graphed to the right.		<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>base</td> </tr> <tr> <td>-1</td> <td>1/base</td> </tr> </tbody> </table>	x	y	0	1	1	base	-1	1/base	<p>Shift the origin.</p> <p>From the new "origin": Over 0 up 1 Over 1 up base Over -1 up 1/base</p>						
x	y																	
0	1																	
1	base																	
-1	1/base																	
Logarithmic	$y = \log_b x$ $y = \log_5 x$ is graphed to the right.		<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> </tr> <tr> <td>base</td> <td>1</td> </tr> <tr> <td>1/base</td> <td>-1</td> </tr> </tbody> </table>	x	y	0	1	base	1	1/base	-1	<p>Shift the origin.</p> <p>From the new "origin": Over 1 up 0 Over base up 1 Over 1/base down 1</p>						
x	y																	
0	1																	
base	1																	
1/base	-1																	

Absolute Value

$$y = |x|$$



x	y
0	0
1	1
2	2
-1	1
-2	2

From the vertex, use the slope to find the next points.

Repeat using negative slope on the other side of the y-axis.