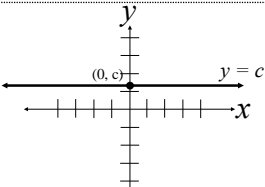
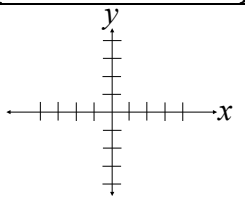
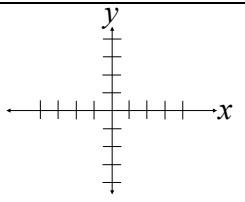
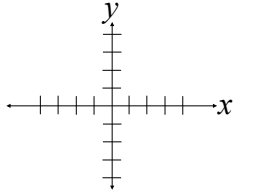
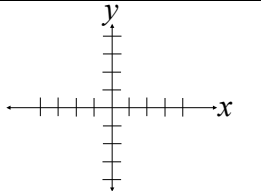
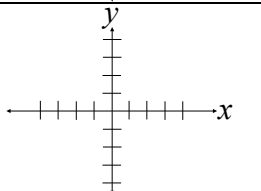
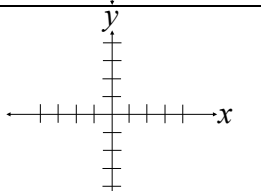
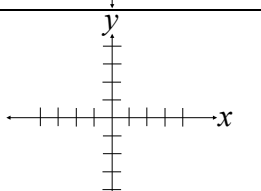
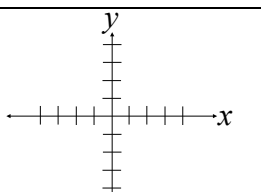
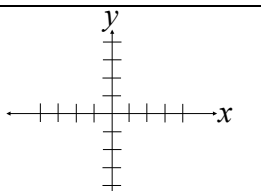
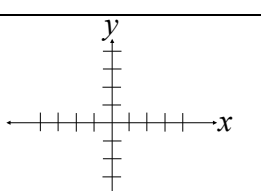


Parent Functions and Their Graphs

The five function families that we're working with here are:

<p>1. Constant: <math>f(x) = c</math>, where <math>c</math> is a number  <i>The graph is always a horizontal line at <math>y = c</math></i></p>													
<p>2. Linear: <math>f(x) = x</math>  <i>Plug in a few x-values:</i>  <math>f(-1) = -1</math>  <math>f(0) = 0</math>  <math>f(1) = 1</math>  <i>Write it in an xy table:</i></p>	<table style="display: inline-table; vertical-align: middle;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;"><math>x</math></td><td style="padding: 2px 5px;"><math>y</math></td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">-1</td><td style="padding: 2px 5px;">-1</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">0</td><td style="padding: 2px 5px;">0</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">1</td><td style="padding: 2px 5px;">1</td></tr> </table> <p style="margin-left: 20px;"><i>and graph the points:</i></p>	$x$	$y$	-1	-1	0	0	1	1				
$x$	$y$												
-1	-1												
0	0												
1	1												
<p>3. Quadratic: <math>f(x) = x^2</math>  <math>f(-2) = (-2)^2 = 4</math>  <math>f(-1) = (-1)^2 = 1</math>  <math>f(0) = (0)^2 = 0</math>  <math>f(1) = (1)^2 = 1</math>  <math>f(2) = (2)^2 = 4</math></p>	<table style="display: inline-table; vertical-align: middle;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;"><math>x</math></td><td style="padding: 2px 5px;"><math>y</math></td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">-2</td><td style="padding: 2px 5px;">4</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">-1</td><td style="padding: 2px 5px;">1</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">0</td><td style="padding: 2px 5px;">0</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">1</td><td style="padding: 2px 5px;">1</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">2</td><td style="padding: 2px 5px;">4</td></tr> </table>	$x$	$y$	-2	4	-1	1	0	0	1	1	2	4
$x$	$y$												
-2	4												
-1	1												
0	0												
1	1												
2	4												
<p>4. Cubic: <math>f(x) = x^3</math>  <math>f(-2) = (-2)^3 = -8</math>  <math>f(-1) = (-1)^3 = -1</math>  <math>f(0) = (0)^3 = 0</math>  <math>f(1) = (1)^3 = 1</math>  <math>f(2) = (2)^3 = 8</math></p>	<table style="display: inline-table; vertical-align: middle;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;"><math>x</math></td><td style="padding: 2px 5px;"><math>y</math></td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">-2</td><td style="padding: 2px 5px;">-8</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">-1</td><td style="padding: 2px 5px;">-1</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">0</td><td style="padding: 2px 5px;">0</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">1</td><td style="padding: 2px 5px;">1</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">2</td><td style="padding: 2px 5px;">8</td></tr> </table>	$x$	$y$	-2	-8	-1	-1	0	0	1	1	2	8
$x$	$y$												
-2	-8												
-1	-1												
0	0												
1	1												
2	8												
<p>5. Square Root: <math>f(x) = \sqrt{x}</math>  <math>f(-1) = \sqrt{-1} = \text{impossible}</math> <i>can't be -!</i>  <math>f(0) = \sqrt{0} = 0</math>  <math>f(1) = \sqrt{1} = 1</math>  <math>f(2) = \sqrt{4} = 2</math></p>	<table style="display: inline-table; vertical-align: middle;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;"><math>x</math></td><td style="padding: 2px 5px;"><math>y</math></td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">-1</td><td style="padding: 2px 5px;">NO!</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">0</td><td style="padding: 2px 5px;">0</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">1</td><td style="padding: 2px 5px;">1</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">4</td><td style="padding: 2px 5px;">2</td></tr> </table>	$x$	$y$	-1	NO!	0	0	1	1	4	2		
$x$	$y$												
-1	NO!												
0	0												
1	1												
4	2												

Function & Family	f(x) = ? (DO NOT USE THE PARENT FUNCTION!!!)			Table	Graph of Function (NOT THE PARENT!!)												
<p>1. <math>f(x) = 2x^2 - 4</math>                       Family: _____                       Parent: <math>f(x) = \underline{\hspace{2cm}}</math></p>	$f(-2) =$	$f(-1) =$	$f(0) =$	<table style="margin: auto;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;"><math>x</math></td><td style="padding: 2px 5px;"><math>y</math></td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">-2</td><td style="padding: 2px 5px;"></td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">-1</td><td style="padding: 2px 5px;"></td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">0</td><td style="padding: 2px 5px;"></td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">1</td><td style="padding: 2px 5px;"></td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">2</td><td style="padding: 2px 5px;"></td></tr> </table>	$x$	$y$	-2		-1		0		1		2		
$x$	$y$																
-2																	
-1																	
0																	
1																	
2																	
<p>2. <math>g(x) = x + 2</math>                       Family: _____                       Parent: <math>g(x) = \underline{\hspace{2cm}}</math></p>	$g(-2) =$	$g(0) =$	$g(1) =$	<table style="margin: auto;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;"><math>x</math></td><td style="padding: 2px 5px;"><math>y</math></td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">-2</td><td style="padding: 2px 5px;"></td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">0</td><td style="padding: 2px 5px;"></td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">1</td><td style="padding: 2px 5px;"></td></tr> </table>	$x$	$y$	-2		0		1						
$x$	$y$																
-2																	
0																	
1																	

<p>3. <math>h(x) = x^3 + 3</math></p> <p>Family: _____</p> <p>Parent: <math>h(x) = \underline{\hspace{2cm}}</math></p>	<p><math>h(-2) =</math></p>	<p><math>h(-1) =</math></p>	<p><math>h(0) =</math></p>	<table border="1"> <thead> <tr> <th><math>x</math></th> <th><math>y</math></th> </tr> </thead> <tbody> <tr><td>-2</td><td></td></tr> <tr><td>-1</td><td></td></tr> <tr><td>0</td><td></td></tr> <tr><td>1</td><td></td></tr> <tr><td>2</td><td></td></tr> </tbody> </table>	$x$	$y$	-2		-1		0		1		2		 <p><i>If pts out of given space, don't graph them (today)</i></p>
$x$	$y$																
-2																	
-1																	
0																	
1																	
2																	
<p>4. <math>j(x) = 3</math></p> <p>Family: _____</p> <p>Parent: <math>j(x) = \underline{\hspace{2cm}}</math></p>	<p><math>j(-1) =</math></p>	<p><math>j(0) =</math></p>	<p><math>j(1) =</math></p>	<table border="1"> <thead> <tr> <th><math>x</math></th> <th><math>y</math></th> </tr> </thead> <tbody> <tr><td>-1</td><td></td></tr> <tr><td>0</td><td></td></tr> <tr><td>1</td><td></td></tr> </tbody> </table>	$x$	$y$	-1		0		1						
$x$	$y$																
-1																	
0																	
1																	
<p>5. <math>k(x) = \sqrt{2x}</math></p> <p>Family: _____</p> <p>Parent: <math>k(x) = \underline{\hspace{2cm}}</math></p>	<p><math>k(0) =</math></p>	<p><math>k(2) =</math></p>	<p><math>k(8) =</math></p>	<table border="1"> <thead> <tr> <th><math>x</math></th> <th><math>y</math></th> </tr> </thead> <tbody> <tr><td>0</td><td></td></tr> <tr><td>2</td><td></td></tr> <tr><td>8</td><td></td></tr> </tbody> </table>	$x$	$y$	0		2		8						
$x$	$y$																
0																	
2																	
8																	
<p>6. <math>m(x) = 2</math></p> <p>Family: _____</p> <p>Parent: <math>m(x) = \underline{\hspace{2cm}}</math></p>	<p><math>m(-1) =</math></p>	<p><math>m(0) =</math></p>	<p><math>m(1) =</math></p>	<table border="1"> <thead> <tr> <th><math>x</math></th> <th><math>y</math></th> </tr> </thead> <tbody> <tr><td>-1</td><td></td></tr> <tr><td>0</td><td></td></tr> <tr><td>1</td><td></td></tr> </tbody> </table>	$x$	$y$	-1		0		1						
$x$	$y$																
-1																	
0																	
1																	
<p>7. <math>n(x) = x^2 + 3</math></p> <p>Family: _____</p> <p>Parent: <math>n(x) = \underline{\hspace{2cm}}</math></p>	<p><math>n(-2) =</math></p>	<p><math>n(-1) =</math></p>	<p><math>n(0) =</math></p>	<table border="1"> <thead> <tr> <th><math>x</math></th> <th><math>y</math></th> </tr> </thead> <tbody> <tr><td>-1</td><td></td></tr> <tr><td>0</td><td></td></tr> <tr><td>1</td><td></td></tr> <tr><td>2</td><td></td></tr> </tbody> </table>	$x$	$y$	-1		0		1		2				
$x$	$y$																
-1																	
0																	
1																	
2																	
<p>8. <math>p(x) = -2x^3</math></p> <p>Family: _____</p> <p>Parent: <math>p(x) = \underline{\hspace{2cm}}</math></p>	<p><math>p(-2) =</math></p>	<p><math>p(-1) =</math></p>	<p><math>p(0) =</math></p>	<table border="1"> <thead> <tr> <th><math>x</math></th> <th><math>y</math></th> </tr> </thead> <tbody> <tr><td>-2</td><td></td></tr> <tr><td>-1</td><td></td></tr> <tr><td>0</td><td></td></tr> <tr><td>1</td><td></td></tr> <tr><td>2</td><td></td></tr> </tbody> </table>	$x$	$y$	-2		-1		0		1		2		
$x$	$y$																
-2																	
-1																	
0																	
1																	
2																	
<p>9. <math>r(x) = \sqrt{x+3}</math></p> <p>Family: _____</p> <p>Parent: <math>r(x) = \underline{\hspace{2cm}}</math></p>	<p><math>r(-3) =</math></p>	<p><math>r(-2) =</math></p>	<p><math>r(1) =</math></p>	<table border="1"> <thead> <tr> <th><math>x</math></th> <th><math>y</math></th> </tr> </thead> <tbody> <tr><td>-3</td><td></td></tr> <tr><td>-2</td><td></td></tr> <tr><td>1</td><td></td></tr> <tr><td>6</td><td></td></tr> </tbody> </table>	$x$	$y$	-3		-2		1		6				
$x$	$y$																
-3																	
-2																	
1																	
6																	
<p>10. <math>t(x) = 3x + 4</math></p> <p>Family: _____</p> <p>Parent: <math>t(x) = \underline{\hspace{2cm}}</math></p>	<p><math>t(-2) =</math></p>	<p><math>t(0) =</math></p>	<p><math>t(1) =</math></p>	<table border="1"> <thead> <tr> <th><math>x</math></th> <th><math>y</math></th> </tr> </thead> <tbody> <tr><td>-2</td><td></td></tr> <tr><td>0</td><td></td></tr> <tr><td>1</td><td></td></tr> </tbody> </table>	$x$	$y$	-2		0		1						
$x$	$y$																
-2																	
0																	
1																	