

# Parent Graph Graphic Organizer

G

Parent Graph Family: linear

Equation:  $f(x) = x$

x	y
-3	-3
-2	-2
-1	-1
0	0
1	1
2	2
3	3

Domain:  $x = \mathbb{R}$  Range:  $y = \mathbb{R}$

Locator point:  $(0,0)$  Any point on line

Parent Graph Family: Quadratic

Equation:  $f(x) = x^2$

x	y
-3	9
-2	4
-1	1
0	0
1	1
2	4
3	9

Domain:  $x = \mathbb{R}$  Range:  $y \geq 0$

Locator point:  $(0,0)$  vertex

Parent Graph Family: Cubic

Equation:  $f(x) = x^3$

x	y
-3	-27
-2	-8
-1	-1
0	0
1	1
2	8
3	27

Domain:  $x = \mathbb{R}$  Range:  $y = \mathbb{R}$

Locator point:  $(0,0)$  Point of inflection

Parent Graph Family: Exponential

Equation:  $f(x) = 2^x$

x	y
-3	$\frac{1}{8}$
-2	$\frac{1}{4}$
-1	$\frac{1}{2}$
0	1
1	2
2	4
3	8

Domain:  $x = \mathbb{R}$  Range:  $y > 0$

Locator point:  $(0,1)$  intersection of axes

# Parent Graph Graphic Organizer

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Parent Graph Family: **Hyperbolic**

Equation:  $f(x) = \frac{1}{x}$

x	y
-3	$-\frac{1}{3}$
-2	$-\frac{1}{2}$
-1	-1
0	undefined
1	1
2	$\frac{1}{2}$
3	$\frac{1}{3}$

Graph:

Domain: ~~x = R~~  $x \neq 0$  Range: ~~y = R~~  $y \neq 0$

Locator point: (0,0) intersection of axes

Parent Graph Family: **Absolute Value**

Equation:  $f(x) = |x|$

x	y
-3	3
-2	2
-1	1
0	0
1	1
2	2
3	3

Graph:

Domain:  $x = \mathbb{R}$  Range:  $y \geq 0$

Locator point: (0,0) vertex

Parent Graph Family: **Square Root**

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

x	y
0	0
1	1
4	2
9	3
16	4
25	5

Graph:

Domain:  $x \geq 0$  Range:  $y \geq 0$

Locator point: (0,0) end point

Parent Graph Family: **Cube Root**

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

x	y
-27	-3
-8	-2
-1	-1
0	0
1	1
8	2
27	3

Graph:

Domain:  $x = \mathbb{R}$  Range:  $y = \mathbb{R}$

Locator point: Point of inflection (0,0)