

AA PREP: PARENT FUNCTIONS—WORKSHEET #1

KEY

Graph each of the following parent functions. State domain and range. Include any asymptotes.

1. $y = x^2$ QUADRATIC ↕

x	y
-2	4
-1	1
0	0
1	1
2	4

Domain: \mathbb{R}
 $(-\infty, \infty)$ Range: $y \geq 0$
 $[0, \infty)$

2. $f(x) = |x|$ ABSOLUTE VALUE ↕

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

Domain: \mathbb{R}
 $(-\infty, \infty)$ Range: $y \geq 0$
 $[0, \infty)$

3. $g(x) = \sqrt{x}$ SQUARE ROOT ↗

x	y
0	0
1	1
4	2
9	3

Domain: $x \geq 0$
 $[0, \infty)$ Range: $y \geq 0$
 $[0, \infty)$

4. $y = 2^x$ EXPONENTIAL ↔

x	y
-3	1/8
-2	1/4
-1	1/2
0	1
1	2
2	4
3	8

Domain: \mathbb{R}
 $(-\infty, \infty)$ Range: $y > 0$
 $(0, \infty)$

5. $f(x) = x^3$ CUBIC ↕

x	y
-2	-8
-1	-1
0	0
1	1
2	8

Domain: \mathbb{R}
 $(-\infty, \infty)$ Range: \mathbb{R}
 $(-\infty, \infty)$

6. $g(x) = \frac{1}{x}$ RATIONAL ↔

x	y
-3	-1/3
-2	-1/2
-1	-1
0	UNDEFINED
1	1
2	1/2
3	1/3

Domain: $\mathbb{R}, x \neq 0$
 $(-\infty, 0) \cup (0, \infty)$ Range: $\mathbb{R}, y \neq 0$
 $(-\infty, 0) \cup (0, \infty)$