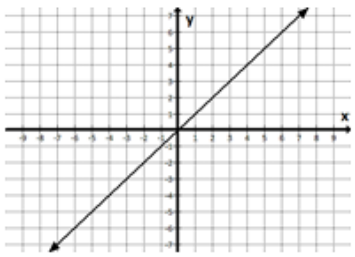
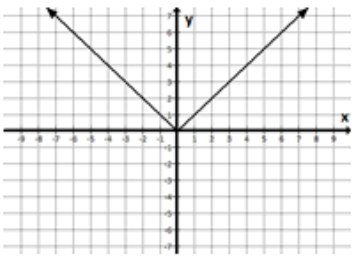
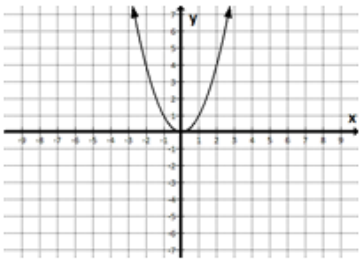
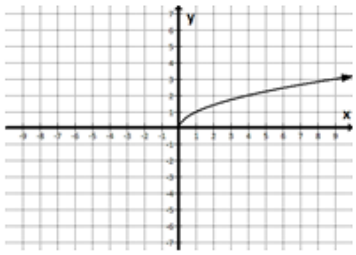
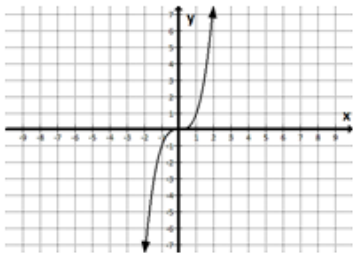
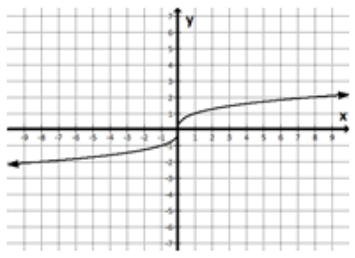
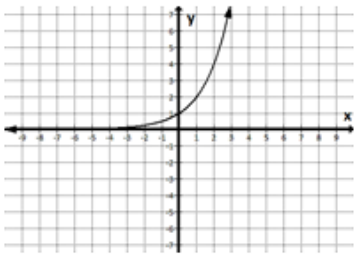
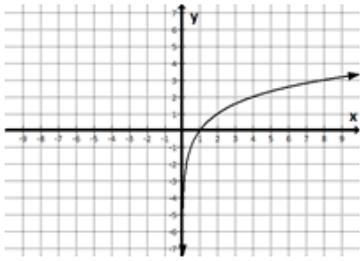
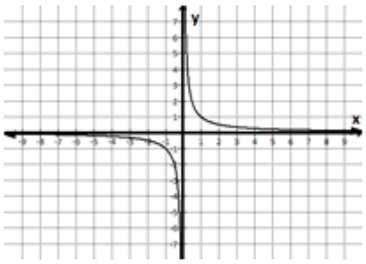
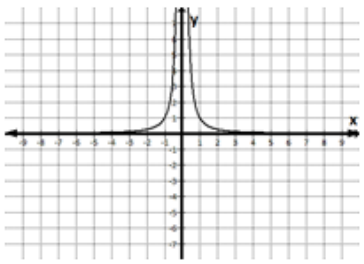
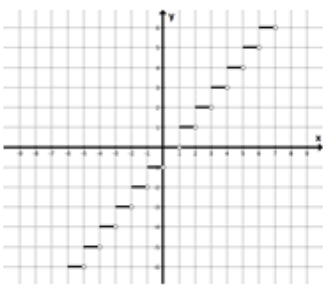
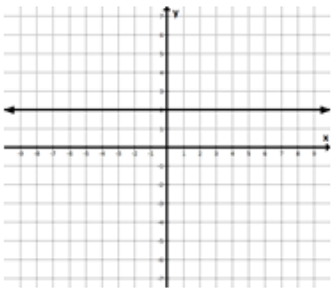
Parent Functions

(with Domain and Range)

Parent Function	Graph	Parent Function	Graph
$y = x$ **Linear**, Odd Domain: $(-\infty,\infty)$ Range: $(-\infty,\infty)$ End Behavior: $x\to-\infty,\ y\to-\infty$ $x\to\infty,\ y\to\infty$		$y = \lvert x\rvert$ **Absolute Value**, Even Domain: $(-\infty,\infty)$ Range: $[0,\infty)$ End Behavior: $x\to-\infty,\ y\to\infty$ $x\to\infty,\ y\to\infty$	
$y = x^2$ **Quadratic**, Even Domain: $(-\infty,\infty)$ Range: $[0,\infty)$ End Behavior: $x\to-\infty,\ y\to\infty$ $x\to\infty,\ y\to\infty$		$y = \sqrt{x}$ **Radical**, Neither Domain: $[0,\infty)$ Range: $[0,\infty)$ End Behavior: $x\to\infty,\ y\to\infty$	
$y = x^3$ **Cubic**, Odd Domain: $(-\infty,\infty)$ Range: $(-\infty,\infty)$ End Behavior: $x\to-\infty,\ y\to-\infty$ $x\to\infty,\ y\to\infty$		$y = \sqrt[3]{x}$ **Cube Root**, Odd Domain: $(-\infty,\infty)$ Range: $(-\infty,\infty)$ End Behavior: $x\to-\infty,\ y\to-\infty$ $x\to\infty,\ y\to\infty$	
$y = b^x,\ b>1$ **Exponential**, Neither Domain: $(-\infty,\infty)$ Range: $(0,\infty)$ End Behavior: $x\to-\infty,\ y\to0$ $x\to\infty,\ y\to\infty$		$y = \log_b(x),\ b>1$ **Log**, Neither Domain: $(0,\infty)$ Range: $(-\infty,\infty)$ End Behavior: $x\to0^+,\ y\to-\infty$ $x\to\infty,\ y\to\infty$	
$y = \dfrac{1}{x}$ **Rational (Inverse)**, Odd Domain: $(-\infty,0)\cup(0,\infty)$ Range: $(-\infty,0)\cup(0,\infty)$ End Behavior: $x\to-\infty,\ y\to0$ $x\to\infty,\ y\to0$		$y = \dfrac{1}{x^2}$ **Rational (Inverse Squared)**, Even Domain: $(-\infty,0)\cup(0,\infty)$ Range: $(0,\infty)$ End Behavior: $x\to-\infty,\ y\to0$ $x\to\infty,\ y\to0$	
$y = \text{int}(x) = [x]$ **Greatest Integer**, Neither Domain: $(-\infty,\infty)$ Range: $\{y : y\in\mathbb{Z}\}$ (integers) End Behavior: $x\to-\infty,\ y\to-\infty$ $x\to\infty,\ y\to\infty$		$y = C$ ($y = 2$ in the graph) **Constant**, Even Domain: $(-\infty,\infty)$ Range: $\{y : y = C\}$ End Behavior: $x\to-\infty,\ y\to C$ $x\to\infty,\ y\to C$