Basic Functions

| **Name** | **Equation** | **Graph** | **Domain** | **Range** | **Symmetry** |
| --- | --- | --- | --- | --- | --- |
| Constant Function |  | a horizontal line crossing the y-axis at the point left parenthesis 0 comma b right parenthesis |  |  | Even |
| Identity Function |  | A graph of a line with the equation x equals y.  The line consists of all points of the form left parenthesis x comma x right parenthesis and passes through quadrants 4 and 1. |  |  | Odd |
| Square Function |  | A graph of a parabola opening up symmetrical about the y-axis with its vertex (lowest point) at the origin.  Also contains the points left parenthesis negative 1 comma 1 right parenthesis, (1,1), left parenthesis negative 2 comma 4 right parenthesis, and (2, 4) |  |  | Even |
| Cube Function |  | A graph of a curve rising sharply to the right from quadrant III, flattening out sharply near the origin, moving along the x-axis via the origin and rising sharply again into quadrant I. The curve is symmetrical about the origin.  The points (1, 1) and left parenthesis negative 1, negative 1 right parenthesis are also labeled. |  |  | Odd |
| Absolute Value Function |  | A v-shaped graph of 2 lines originating from the origin, one rising to the left in quadrant II containing points such as left parenthesis negative 1 comma 1 right parenthesis and left parenthesis negative 2 comma 2 right parenthesis , the other rising to the right in quadrant I containing points such as left parenthesis 1 comma 1 right parenthesis and left parenthesis 2 comma 2 right parenthesis. The graph is symmetrical about the y-axis. |  |  | Even |
| Square Root Function |  | A graph of a curve gently rising to the right from the origin into quadrant I. The points (1, 1) and (4, 2) are also labeled. |  |  | None |
| Cube Root Function |  | A graph of a curve rising gently to the right from quadrant III, rising sharply near the origin, moving along the y-axis via the origin and rising gently again into quadrant I. The curve is symmetrical about the origin.   The points (1, 1) and left parenthesis negative 1, negative 1 right parenthesis are also labeled. |  |  | Odd |
| Reciprocal Function |  | A graph consisting of two pieces:  one in quadrant I pointing up at the y-axis and descending to the x-axis pointing right and the other branch in quadrant III starting near the x-axis pointing left and descending towards the y-axis pointing down,  symmetric about the origin.   The points (1, 1) and left parenthesis negative 1, negative 1 right parenthesis are also labeled. |  |  | Odd |