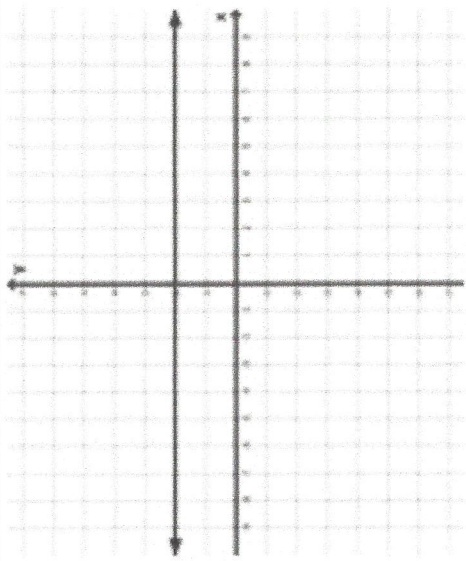


# PARENT FUNCTIONS



Constant,  $f(x)=c$

Domain  $(-\infty, \infty)$

Range

$c$

End Behavior

as  $x \rightarrow -\infty, y \rightarrow c$  as  $x \rightarrow \infty, y \rightarrow c$

Critical Points

Center  $(0, c)$  X intercepts none Y intercepts  $(0, c)$

Linear,  $f(x)=x$

Domain  $(-\infty, \infty)$

Range

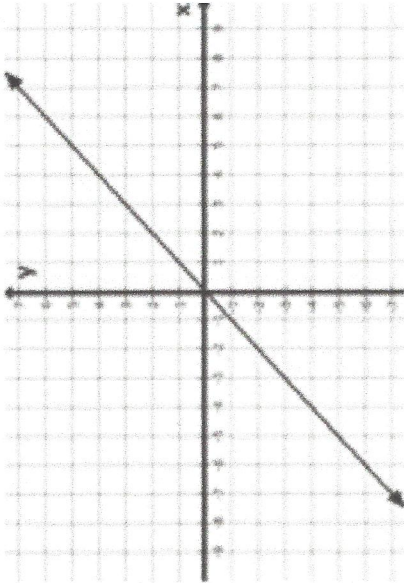
$(-\infty, \infty)$

End Behavior

as  $x \rightarrow -\infty, y \rightarrow -\infty$  as  $x \rightarrow \infty, y \rightarrow \infty$

Critical Points

Center  $(0, 0)$  X intercepts  $(0, 0)$  Y intercepts  $(0, 0)$



Quadratic,  $f(x)=x^2$

Domain  $(-\infty, \infty)$

Range

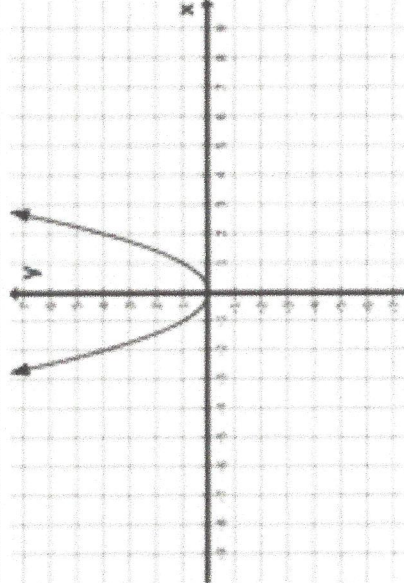
$[0, \infty)$

End Behavior

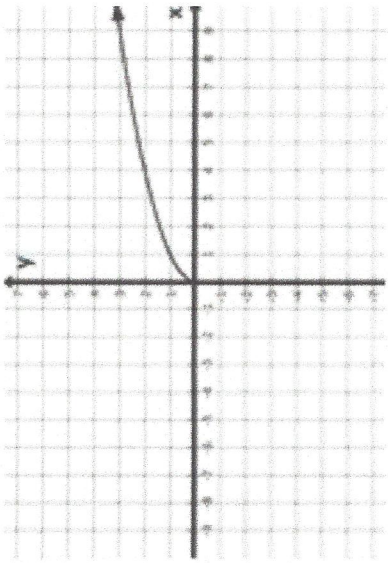
as  $x \rightarrow -\infty, y \rightarrow \infty$  as  $x \rightarrow \infty, y \rightarrow \infty$

Critical Points

Vertex  $(0, 0)$  X intercepts  $(0, 0)$  Y intercepts  $(0, 0)$



# PARENT FUNCTIONS

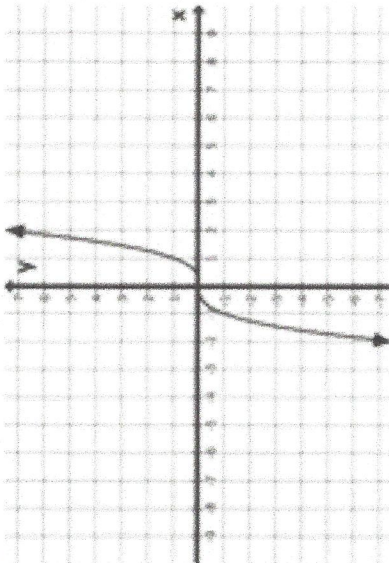


**Radical (Square Root),  $f(x) = \sqrt{x}$**

Domain  $[0, \infty)$  Range  $[0, \infty)$   
 End Behavior  $a.s. x \rightarrow -\infty, y \rightarrow 0$   $a.s. x \rightarrow \infty, y \rightarrow \infty$

**Critical Points**

Vertex  $(0, 0)$  X intercepts  $(0, 0)$  Y intercepts  $(0, 0)$

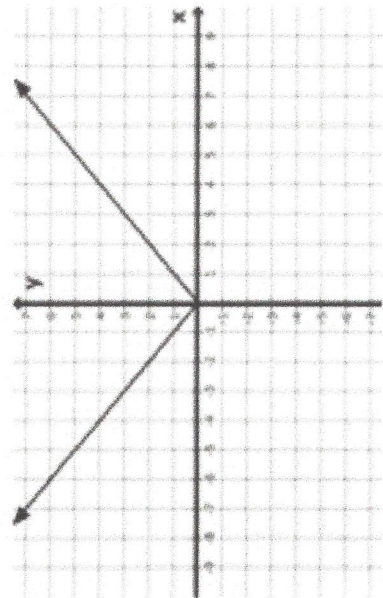


**Cubic,  $f(x) = x^3$**

Domain  $(-\infty, \infty)$  Range  $(-\infty, \infty)$   
 End Behavior  $a.s. x \rightarrow -\infty, y \rightarrow -\infty$   $a.s. x \rightarrow \infty, y \rightarrow \infty$

**Critical Points**

Center  $(0, 0)$  X intercepts  $(0, 0)$  Y intercepts  $(0, 0)$



**Absolute Value,  $f(x) = |x|$**

Domain  $(-\infty, \infty)$  Range  $(-\infty, \infty)$   
 End Behavior  $a.s. x \rightarrow -\infty, y \rightarrow \infty$   $a.s. x \rightarrow \infty, y \rightarrow \infty$

**Critical Points**

Vertex  $(0, 0)$  X intercepts  $(0, 0)$  Y intercepts  $(0, 0)$