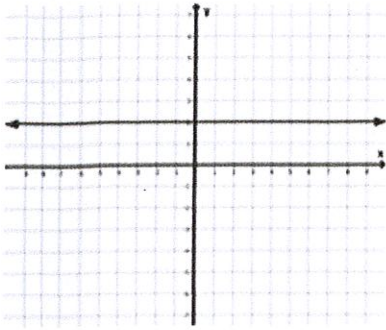


Key

PARENT FUNCTIONS



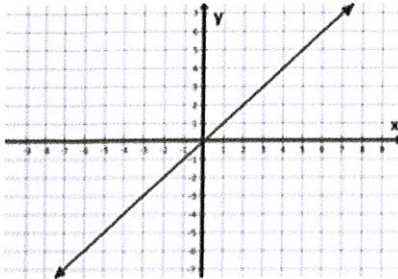
Constant, $f(x)=c$

Domain $(-\infty, \infty)$ Range $c = \{y: y=c\}$
 End Behavior

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

Critical Points

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



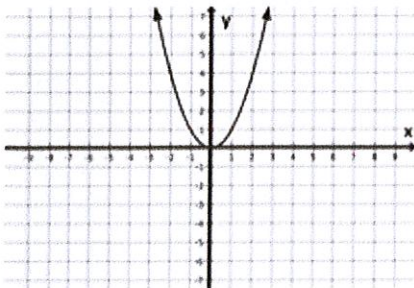
Linear, $f(x)=x$

Domain $(-\infty, \infty)$ Range $(-\infty, \infty)$
 End Behavior

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

Critical Points

Vertex none X intercepts $(0, 0)$ Y intercepts $(0, 0)$



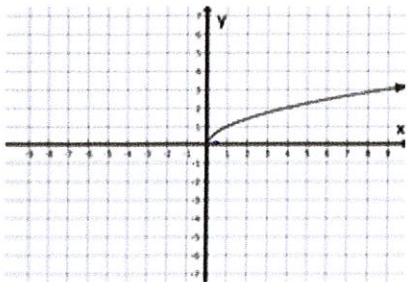
Quadratic, $f(x)=x^2$

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



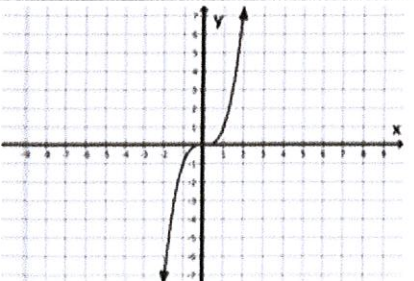
Radical (Square Root), $f(x)=\sqrt{x}$

Domain $[0, \infty)$ Range $[0, \infty)$
 End Behavior

as $x \rightarrow -\infty, y \rightarrow 0$ as $x \rightarrow \infty, y \rightarrow \infty$

Critical Points

Vertex n/a X intercepts $(0, 0)$ Y intercepts $(0, 0)$



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

Domain $(-\infty, \infty)$ Range $(-\infty, \infty)$
 End Behavior

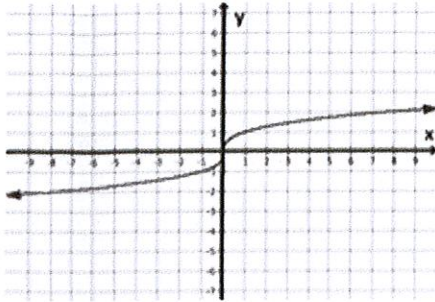
as $x \rightarrow -\infty, y \rightarrow -\infty$ as $x \rightarrow \infty, y \rightarrow \infty$

Critical Points

Vertex none X intercepts $(0, 0)$ Y intercepts $(0, 0)$

flattens @
the origin

PARENT FUNCTIONS



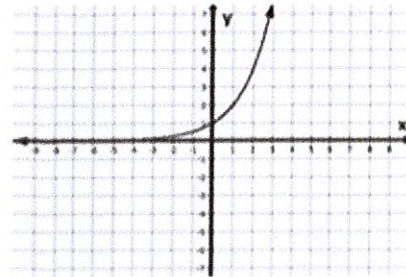
Cube Root, $f(x) = \sqrt[3]{x}$

Domain $(-\infty, \infty)$ Range $(-\infty, \infty)$
End Behavior

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

Critical Points

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



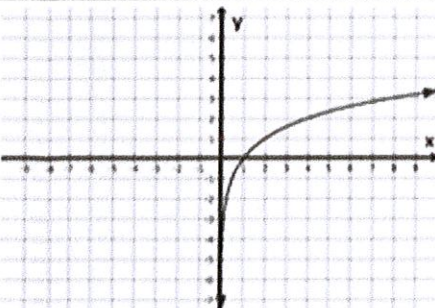
Exponential, $f(x) = b^x$

Domain $(-\infty, \infty)$ Range $(0, \infty)$
End Behavior

as $x \rightarrow -\infty, y \rightarrow 0$ as $x \rightarrow \infty, y \rightarrow \infty$

Critical Points

Vertex *no, horizontal asymptote* X intercepts *none* Y intercepts $(0,1)$



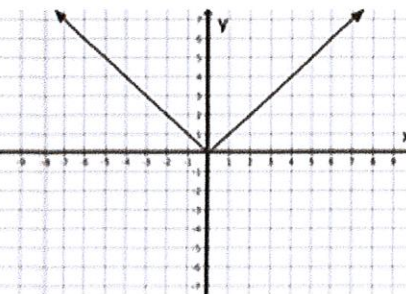
Log, $f(x) = \log_b(x)$

Domain $(0, \infty)$ Range $(-\infty, \infty)$
End Behavior

as $x \rightarrow -\infty, y \rightarrow 0$ as $x \rightarrow \infty, y \rightarrow -\infty$

Critical Points

Vertex *no, vertical asymptote* X intercepts $(1,0)$ Y intercepts *none*



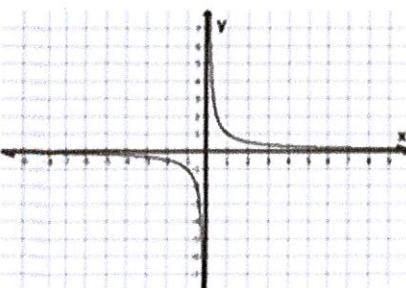
Absolute Value, $f(x) = |x|$

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 $(0,0)$



Rational (Inverse), $f(x) = \frac{1}{x}$

Domain $(-\infty, 0) \cup (0, \infty)$ Range $(-\infty, 0) \cup (0, \infty)$
End Behavior

as $x \rightarrow -\infty, y \rightarrow 0$ as $x \rightarrow \infty, y \rightarrow 0$

Critical Points

Vertex *none* X intercepts *none* Y intercepts *none*

*horizontal asymptote $y = 0$
vertical asymptote $x = 0$*