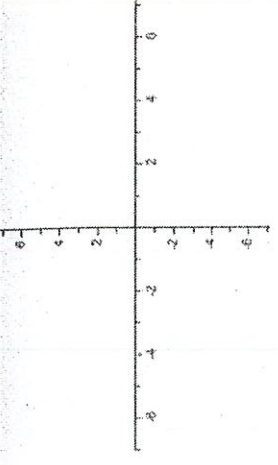
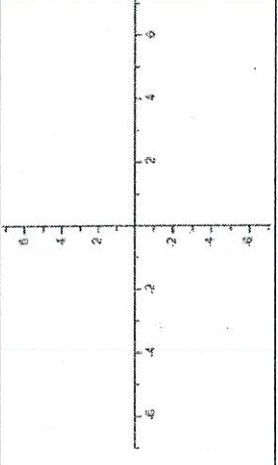
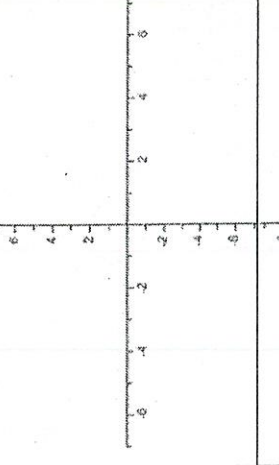
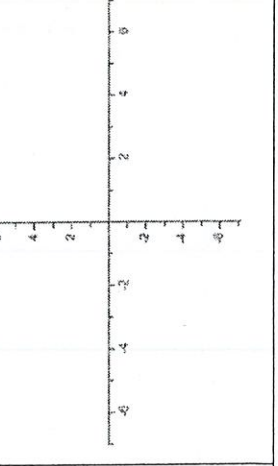


Parent Functions Chart

Function	End Behavior	Domain/Range	Transformation	Graph	Increasing/Decreasing
$y = x - 5$	As $x \rightarrow \infty, y \rightarrow$ $x \rightarrow -\infty, y \rightarrow$	Domain: Range:			Increasing: Decreasing:
Name _____ $y = (x - 4)^2$		Domain: Range:			Increasing: Decreasing:
Name _____ $y = x + 3 - 2$		Domain: Range:			Increasing: Decreasing:
Name _____ $y = -\sqrt{x + 1}$		Domain: Range:			Increasing: Decreasing:

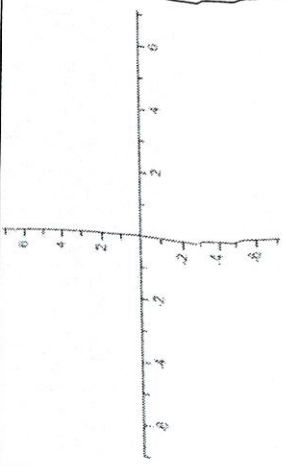
$$y = (x - 5)^3 - 4$$

Name _____

$y = (x - 5)^3 - 4$

Domain:

Range:



Increasing:

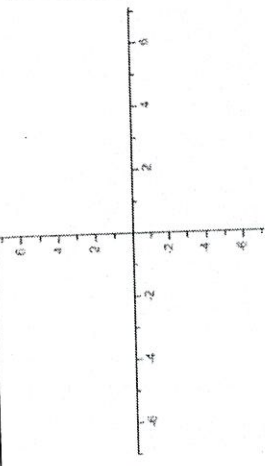
Decreasing:

$$y = \sqrt[3]{x - 2} + 5$$

Name _____

Domain:

Range:



Increasing:

Decreasing:

(,) → not included
 [] → included

Parent Functions Chart

— Generic
 — Transformation

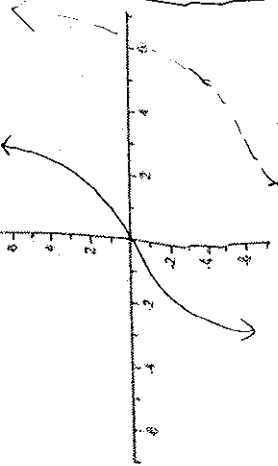
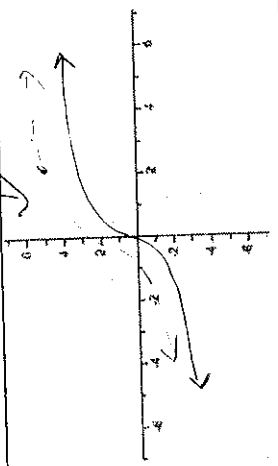
↑
 ↓

Function	End Behavior	Domain/Range	Transformation	Graph	Increasing/Decreasing
$y = x - 5$	As $x \rightarrow \infty$, $y \rightarrow \infty$ As $x \rightarrow -\infty$, $y \rightarrow -\infty$	Domain: $(-\infty, \infty)$ Range: $(-\infty, \infty)$	Down 5		Increasing: $(-\infty, \infty)$ Decreasing: —
Linear	As $x \rightarrow \infty$, $f(x) = \infty$ As $x \rightarrow -\infty$, $f(x) = -\infty$ (odd)	Domain: $(-\infty, \infty)$ Range: $(-\infty, \infty)$	Right 4		Increasing: $(4, \infty)$ Decreasing: $(-\infty, 4)$
$y = (x - 4)^2$	As $x \rightarrow \infty$, $y \rightarrow \infty$ As $x \rightarrow -\infty$, $y \rightarrow \infty$ (even)	Domain: $(-\infty, \infty)$ Range: $[0, \infty)$	Left 3, Down 2		Increasing: $(-3, \infty)$ Decreasing: $(-\infty, -3)$
Quadratic	As $x \rightarrow \infty$, $y \rightarrow \infty$ As $x \rightarrow -\infty$, $y \rightarrow \infty$ (even)	Domain: $(-\infty, \infty)$ Range: $[0, \infty)$	Flipped across x, Left 1		Increasing: — Decreasing: $(-1, \infty)$
$y = x + 3 - 2$	As $x \rightarrow \infty$, $y \rightarrow \infty$ As $x \rightarrow -\infty$, $y \rightarrow \infty$ (even)	Domain: $(-\infty, \infty)$ Range: $[-2, \infty)$			Increasing: — Decreasing: $(-\infty, -3)$
Absolute Value	As $x \rightarrow \infty$, $y \rightarrow \infty$ As $x \rightarrow -\infty$, $y \rightarrow \infty$ (neither)	Domain: $(-\infty, \infty)$ Range: $(-\infty, 0)$			Increasing: — Decreasing: $(-1, \infty)$
$y = -\sqrt{x + 1}$	As $x \rightarrow \infty$, $y \rightarrow -\infty$ As $x \rightarrow -1$, $y \rightarrow 0$ (neither)	Domain: $[-1, \infty)$ Range: $(-\infty, 0)$			Increasing: — Decreasing: $(-1, \infty)$
Square Root					

If degree is even: both up or down
 odd: one up, one down

If leading coefficient is positive: Right arm ↑
 Negative: Right arm ↓

↑
 ↓

$(x-5)^3 - 4$	$\lim_{x \rightarrow -\infty} f(x) = -\infty$ $\lim_{x \rightarrow +\infty} f(x) = +\infty$ (odd)	Domain: $(-\infty, \infty)$ Range: $(-\infty, \infty)$	Right S, Down U		Increasing: $(-\infty, \infty)$ Decreasing: None
$-\sqrt[3]{x-2} + 5$	As $x \rightarrow \infty$ $y \rightarrow \infty$ As $x \rightarrow -\infty$ $y \rightarrow -\infty$ (odd)	Domain: $(-\infty, \infty)$ Range: $(-\infty, \infty)$	Up S, Right U		Increasing: $(-\infty, \infty)$ Decreasing: _____

