

4.
D
R
I
N
D
E
E

Transformations

Domain
& Range

End
Behavior

Increasing

Decreasing

$$y = a(x-h)^2 + k$$

$$y = a|x-h| + k$$

$$y = a(x-h)^3 + k$$

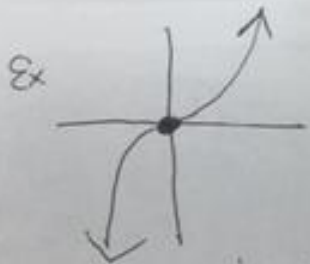
$a \rightarrow a > 1$ stretch
 \downarrow
 $0 < a < 1$ shrink
 $h \rightarrow -h \rightarrow$ right
 \downarrow
 $h \rightarrow h \rightarrow$ left
 $k \rightarrow +k \rightarrow$ up
 \downarrow
 $-k \rightarrow$ down

* Negative in front = reflect

Ex: $y = -5|x-12| + 3$

- Reflect
- stretch by 5
- Right 12
- up 3

→ Describes what your graph does as it approaches the left and right ends of the coordinate grid



Left	Right
$x \rightarrow -\infty$	$x \rightarrow \infty$
$y \rightarrow -\infty$	$y \rightarrow \infty$

Domain \rightarrow x-values

Range \rightarrow y-values

Parentheses when not touching

Brackets: when touching



$D: (-\infty, \infty)$
 $R: [0, \infty)$



Inc: $(-2, \infty)$
 Dec: $(-\infty, -2)$



Inc: NEVER
 Dec: $(-\infty, \infty)$

- Use the x-values
- ONLY use parentheses