Characteristics of Radical Graphs

SQUARE ROOT GRAPHS

Starting point → up to the right

Increase/Decrease: Increase from [x-value of the starting point, ∞)
Domain: [x-value of the starting point, ∞)
Range: [y-value of the starting point, ∞)
Absolute Max/Min: Absolute Min @ the starting point
End Behavior:
LEFT As x→ -∞, y → NA
RIGHT As x→ ∞, y → ∞

Starting point → down to the right

Increase/Decrease: Decrease from [x-value of the starting point, ∞)
Domain: [x-value of the starting point, ∞)
Range: (–∞, y-value of the starting point]
Absolute Max/Min: Absolute Max @ the starting point
End Behavior:
LEFT As x→ -∞, y → NA
RIGHT As x→ ∞, y → -∞

CUBE ROOT GRAPHS

Starting point → up to the right, down to the left

Increase/Decrease: Increase from (–∞, ∞)
Domain: (–∞, ∞)
Range: (–∞, ∞)
Absolute Max/Min: none
End Behavior:
LEFT As x→ -∞, y → –∞
RIGHT As x→ ∞, y → ∞

Starting point → down to the right, up to the left

Increase/Decrease: Decrease from (–∞, ∞)
Domain: (–∞, ∞)
Range: (–∞, ∞)
Absolute Max/Min: none
End Behavior:
LEFT As x→ -∞, y → ∞
RIGHT As x→ ∞, y → -∞

Transformations of Radical Graphs

$f(x) = a\sqrt{x \mp h} \pm k$ $\qquad$ $f(x) = a\sqrt[3]{x \mp h} \pm k$

$-a$ = _____

$a > 1$= _____ $\qquad$ $0 < a < 1$= _____

$x - h$ = _____ $\qquad$ $x + h$ = _____

$+k$ = _____ $\qquad$ $-k$ = _____