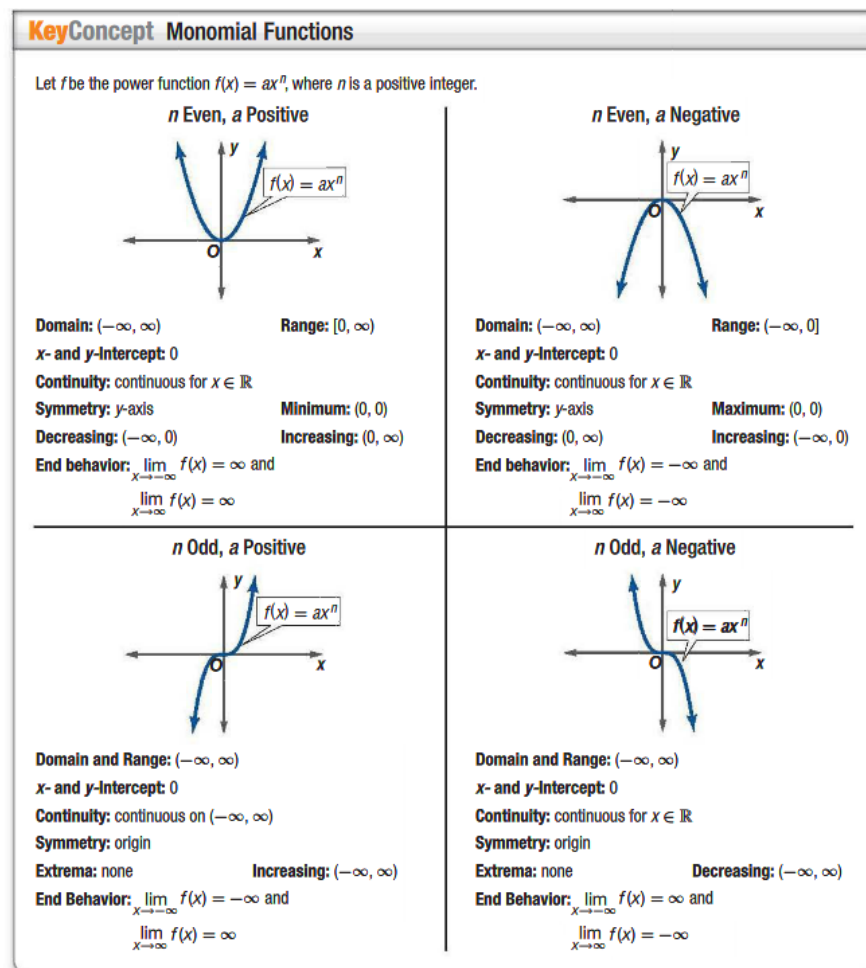


2.1 | Power and Radical Functions (day 2)

OBJECTIVES:

- Graph and Analyze power functions
- Graph and analyze radical functions



2.1 Power and Radical Functions (day 2).notebook

ex. 1 Graph and analyze $f(x) = \frac{1}{2}x^4$

Domain:

Range:

x intercepts:

y intercepts:

Continuity:

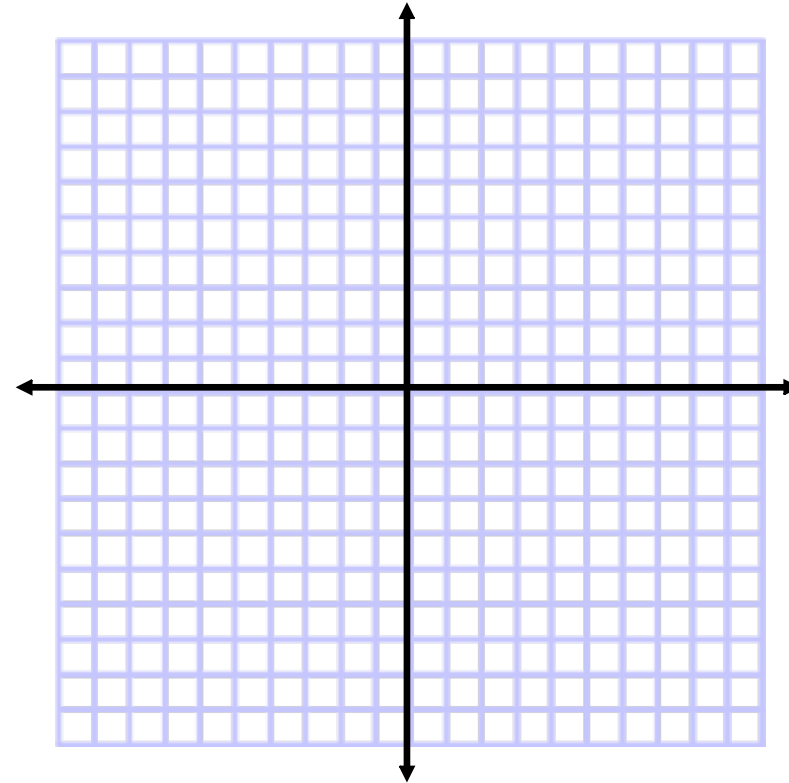
Extrema:

Increasing:

Decreasing:

End Behavior:

Symmetry:



ex. 2 Graph and analyze $f(x) = -x^7$

Domain:

Range:

x intercepts:

y intercepts:

Continuity:

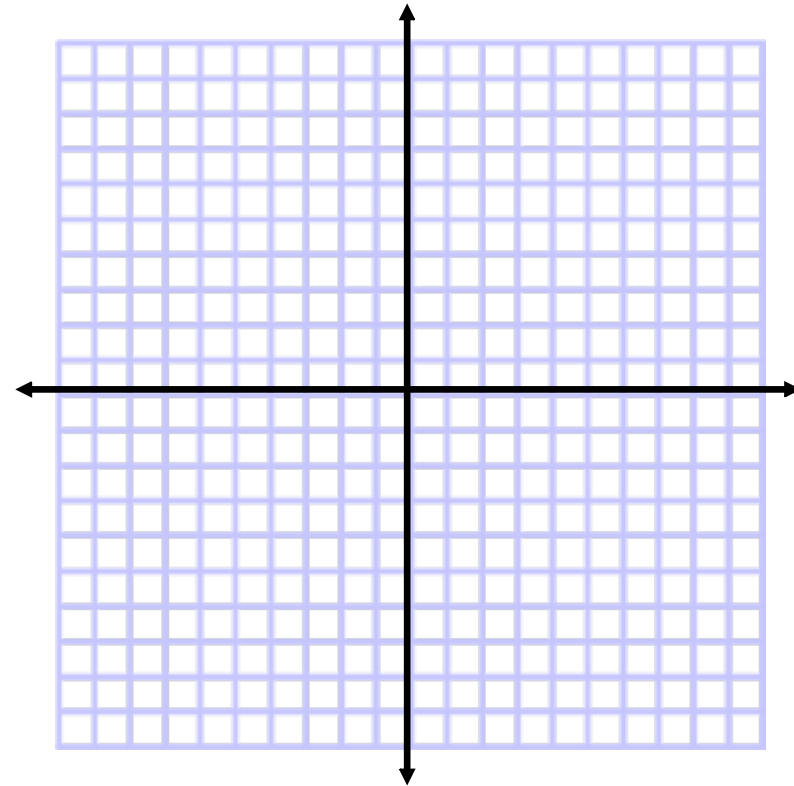
Extrema:

Increasing:

Decreasing:

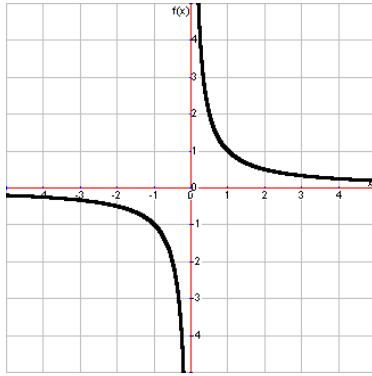
End Behavior:

Symmetry:

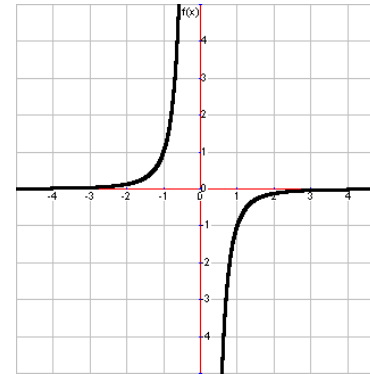


2.1 Power and Radical Functions (day 2).notebook

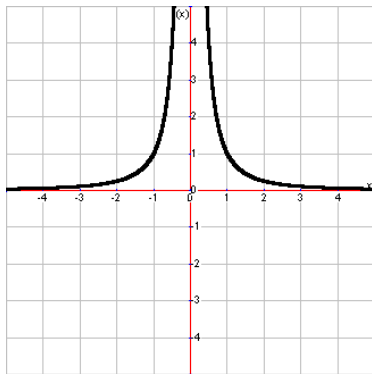
Some example of functions with negative exponents:



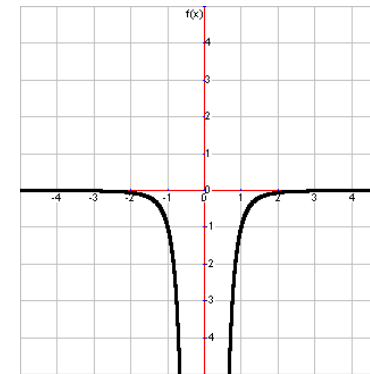
$$y = x^{-1}$$



$$y = -x^{-3}$$



$$y = x^{-2}$$



$$y = -x^{-4}$$

An example of **rational exponents...**

ex. 3 Graph and analyze $f(x) = -\frac{3}{4}x^{-5}$

Domain:

Range:

x intercepts:

y intercepts:

Continuity:

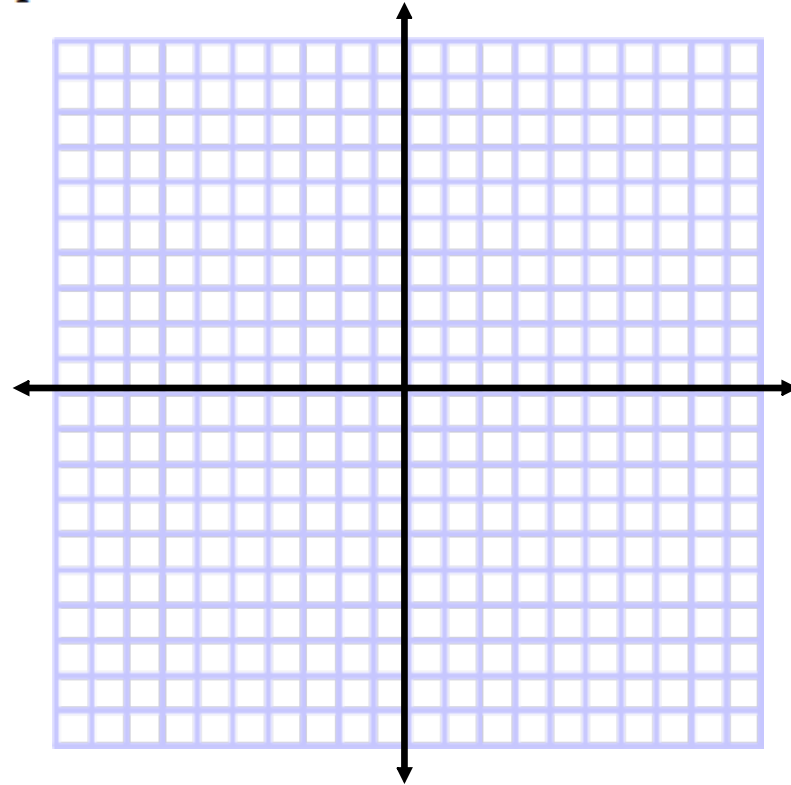
Extrema:

Increasing:

Decreasing:

End Behavior:

Symmetry:



An example of **rational exponents...**

ex. 4 Graph and analyze $f(x) = -6x^{-\frac{2}{3}}$

Domain:

Range:

x intercepts:

y intercepts:

Continuity:

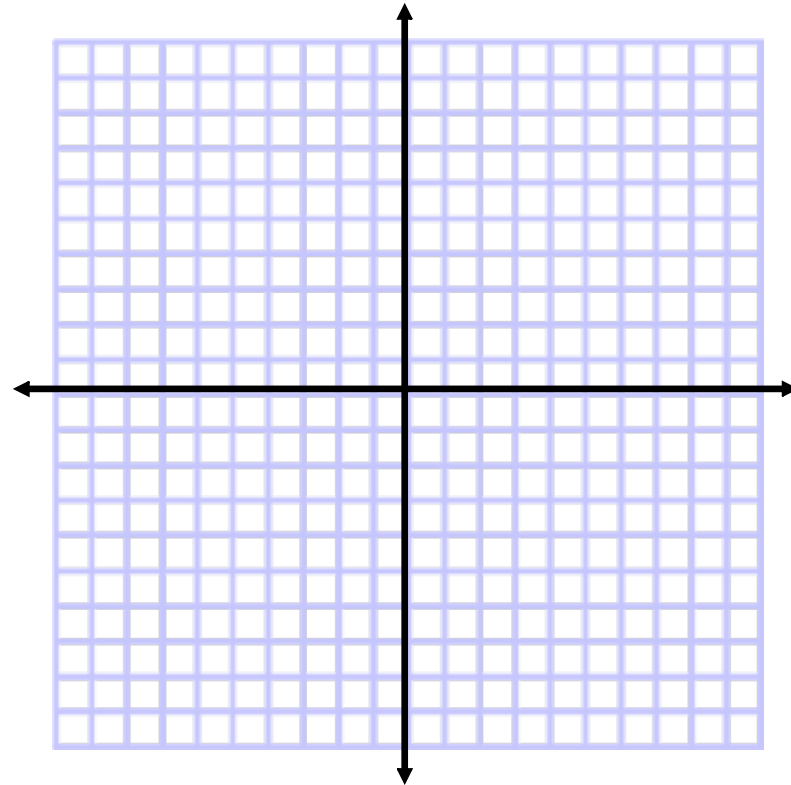
Extrema:

Increasing:

Decreasing:

End Behavior:

Symmetry:

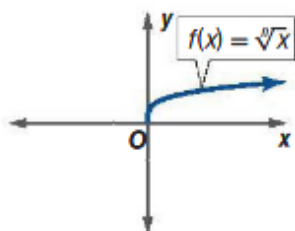


2.1 Power and Radical Functions (day 2).notebook

KeyConcept Radical Functions

Let f be the radical function $f(x) = \sqrt[n]{x}$ where n is a positive integer.

n Even



Domain and Range: $[0, \infty)$

x- and y-Intercept: 0

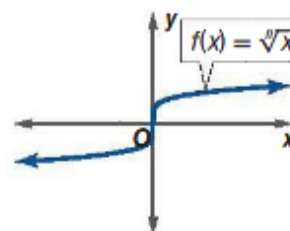
Continuity: continuous on $[0, \infty)$

Symmetry: none **Increasing:** $(0, \infty)$

Extrema: absolute minimum at $(0, 0)$

End Behavior: $\lim_{x \rightarrow \infty} f(x) = \infty$

n Odd



Domain and Range: $(-\infty, \infty)$

x- and y-Intercept: 0

Continuity: continuous on $(-\infty, \infty)$

Symmetry: origin **Increasing:** $(-\infty, \infty)$

Extrema: none

End Behavior: $\lim_{x \rightarrow -\infty} f(x) = -\infty$ and
 $\lim_{x \rightarrow \infty} f(x) = \infty$

2.1 Power and Radical Functions (day 2).notebook

ex. 5 Graph and analyze $f(x) = \frac{1}{4} \sqrt[5]{6x - 8}$

Domain:

Range:

x intercepts:

y intercepts:

Continuity:

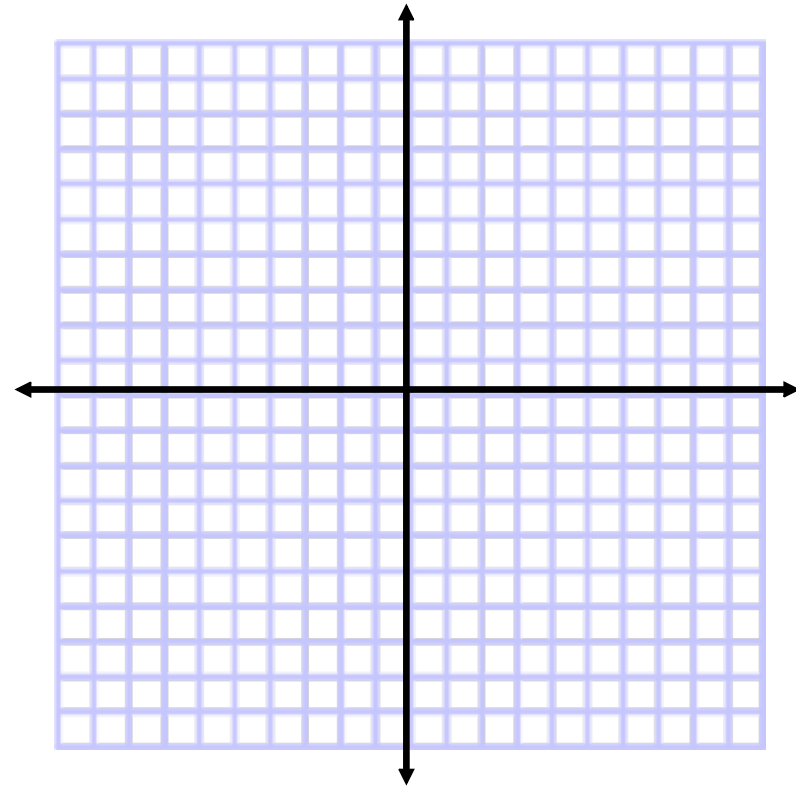
Extrema:

Increasing:

Decreasing:

End Behavior:

Symmetry:



2.1 Power and Radical Functions (day 2).notebook

Assignment:

pg. 92 (1-15, 19-29) odd only