3.5 Summary of Curve Sketching

To sketch curves you must find:

- x & y intercepts
- relative extrema
- intervals of increasing/decreasing
- concavity
- points of inflections
- asymptotes

For Rational Functions, also find:

- holes

For Radical Functions, also find:

- domain

For Polynomial Functions, also find:

- end behavior

Sketching Polynomial Functions

ex: Sketch.

$$y = x^5 - 5x$$

Sketching Rational Functions

ex: Sketch.

$$y = \frac{x^2 - 2x + 4}{x - 2}$$

Sketching Radical Functions

ex: Sketch.

$$y = x\sqrt{9 - x^2}$$

Sketching Radical Functions

ex: Sketch.

$$y = 2x^{5/3} - 5x^{4/3}$$

ex: Sketch.

$$y = \left(\arctan x\right)^2$$

ex: Sketch.

$$y = \ln\left(x^2 + 2x + 3\right)$$

ex: Sketch.

$$y = \frac{1}{1+e^{-x}}$$