Thurs 25 June

- Quiz 8 tomorrow on $\oint 4.3$. Closed book + collaborative.
- Quiz 9 Monday covers Optimization ($\oint 4.4$) with Related Rates sprinkled in. Closed book. Not collaborative.

Exercise (s)

(3) For each of the following functions:

- Find the critical points.
- Use the First Derivative Test to find local extrema.
- Use the Second Derivative Test to find local extrema.
- Find the absolute extrema.

(a) $f(x) = \dfrac{x^2}{x^2 - 1}$ on $[-4, 4]$

(b) $g(x) = 5x^4 - 20x^3 + 10$

(c) $h(x) = \sqrt{x} \ln x$ on $(0, \infty)$

(d) $l(x) = x^2 e^{-x}$

4.3 Graphing Functions

Graphing Guidelines:

1. Identify the domain or interval of interest.
2. Exploit symmetry.
3. Find the first and second derivatives.
4. Find critical points and possible inflection points.
5. Find intervals on which the function is increasing or decreasing, and concave up/down.
6. Identify extreme values and inflection points.

4.3 Graphing Functions (cont.)

7. Locate vertical/horizontal asymptotes and determine end behavior.
8. Find the intercepts.
9. Choose an appropriate graphing window and make a graph.

Exercise

According to the graphing guidelines, sketch a graph of

$$f(x) = \frac{x^2}{x^2 - 4}.$$

4.3 Book Problems

7, 9, 13-19 (odds), 23, 29, 43, 45