SECTION 4.5 CURVE SKETCHING (DAY 2)

1. Follow the guidelines from the previous worksheet to sketch the graph of

$$f(x) = \frac{2}{x} + \ln(x). \qquad \text{(Note: } f'(x) = \frac{x-2}{x^2} \text{ and } f''(x) = \frac{4-x}{x^3}\text{)}$$

   (a) What is the function's domain?

   (b) Determine the y-intercept. Determine the x-intercepts if it's not too hard.

   (c) What behavior occurs for this function as $x \to \pm\infty$?

   (d) Does the function have any vertical asymptotes? Where?

   (e) Find intervals where f is increasing/decreasing and identify critical points.

(f) Classify each critical point as a local min/max/neither.

(g) Find intervals where f is concave up/concave down and identify points of inflection

(h) Collect all the information you have determined into a handy list.

(i) Sketch the graph of the function