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

$$f(x) = \frac{2}{x} + \ln(x).$$

a. What is the function's domain?

b. Does this function have any symmetry?

c. Find a few choice values of x to evaluate the function at.

d. What behaviour occurs for this function at $\pm\infty$?

e. Does the function have any vertical asymptotes? Where?

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

g. Classify each critical point as a local min/max/neither.

h. Find intervals where f is concave up/concave down and identify points of inflection

i. Sketch the graph of the function

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

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

a. What is the function's domain?

b. Does this function have any symmetry?

c. Find a few choice values of x to evaluate the function at.

d. What behaviour occurs for this function at $\pm\infty$?

e. Does the function have any vertical asymptotes? Where?

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

g. Classify each critical point as a local min/max/neither.

h. Find intervals where f is concave up/concave down and identify points of inflection

i. Sketch the graph of the function

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

$$f(x) = \frac{x}{\sqrt{9 + x^2}}.$$

a. What is the function's domain?

b. Does this function have any symmetry?

c. Find a few choice values of x to evaluate the function at.

d. What behaviour occurs for this function at $\pm\infty$?

e. Does the function have any vertical asymptotes? Where?

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

g. Classify each critical point as a local min/max/neither.

h. Find intervals where f is concave up/concave down and identify points of inflection

i. Sketch the graph of the function