Worksheet: Increasing/decreasing and graphs

For each example below, draw a number line or draw a table like those in examples 1–4 in section 4.3. On this number line (or table), indicate the

- critical numbers (if any)
- x-values not in the domain of the function (if any)

These are the endpoints of intervals. Now indicate whether the function is

- increasing or decreasing on these intervals
- which critical numbers are relative maxima or minima (if any)

You can use test values in the intervals as done in 4.3. Then

- sketch the graph

1.

$$f(x) = \frac{1}{2}x + \cos x \qquad \text{in the interval} \qquad (-\pi, 2\pi)$$

2.

$$h(x) = \frac{x}{x^2 - 2}$$

3.

$$g(x) = \frac{3}{4}x^4 - 4x^3 + 6x^2 + 1$$