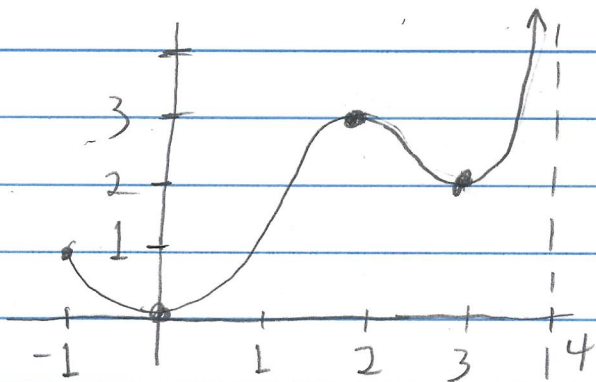


2.3.53

Exercise 2.3.53 For the graph  $y = f(x)$  below, find the absolute maximum and absolute minimum, if they exist. Identify any local maximum values or local minimum values.



Solution

The absolute maximum of a function is the highest point on the graph of the function. Since the graph is unbounded above (it has a vertical asymptote at  $x = 4$  that goes upward), there is no such point and  $f$  has no absolute maximum. An absolute minimum is the lowest point on the graph. The lowest point is  $(0, 0)$ , so the absolute minimum is 0.

$f$  also has a local minimum of 2 (at  $x = 3$ ), and has local maxima of 1 (at  $x = -1$ ) and of 3 (at  $x = 2$ ).

□