GUIDED PREP FOR SECTION 3.1–USING DERIVATIVES TO IDENTIFY EXTREME VALUES

REQUIRED SKILLS

For this section, you will need to recall:

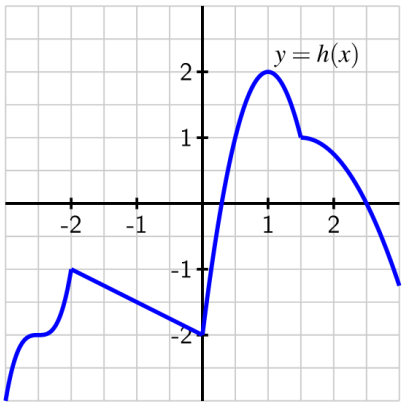
- Solving polynomial inequalities (https://bit.ly/2FXEDLa)
- Differentiability (https://bit.ly/35ChIAz)

READING ASSIGNMENT

Read the beginning of Section 3.1 up until the Preview Activity. Write the definitions of global/absolute maximum, global/absolute minimum, local/relative maximum, and local/relative minimum in your notes and draw a picture for each.

CHECK YOUR UNDERSTANDING/MOTIVATING PROBLEM

(Preview Activity 3.1.1) Consider the function h given by the graph below. Use the graph to answer each of the following questions.



a. Identify all the values of c on the interval [-3,3] such that $h(c)$ is a local maximum of h.
b. Identify all the values of c on the interval [-3,3] such that $h(c)$ is a local minimum of h.
c. Does h have a global maximum on the interval $[-3,3]$? If so, what is the value of this global maximum?
d. Does h have a global minimum on the interval $[-3,3]$? If so, what is its value?
e. Identify all values of c for which $h'(c) = 0$.
f. Identify all values of c for which $h'(c)$ does not exist.
g. True or false: every local maximum or minimum of h occurs at a point where $h'(c)$ is either zero or does not exist.
h. True or false: at every point where $h'(c)$ is zero or does not exist, h has a relative maximum or minimum.