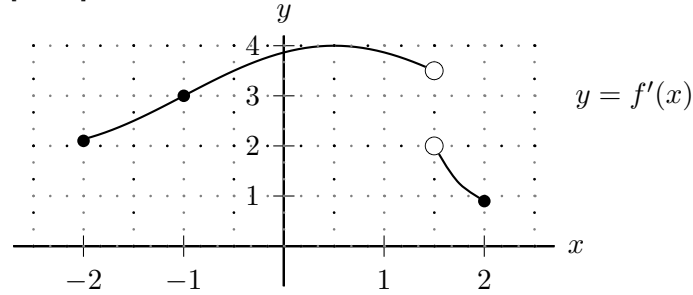


3. [8 points] Suppose  $f(x)$  is a function that is continuous on the interval  $[-2, 2]$ . The graph of  $f'(x)$  on the interval  $[-2, 2]$  is given below.



- a. [3 points] Let  $L(x)$  be the local linearization of  $f(x)$  at  $x = -1$ . Using the fact that  $f(-1) = 4$ , write a formula for  $L(x)$ .

**Answer:**  $L(x) =$  \_\_\_\_\_

- b. [2 points] Use your formula for  $L(x)$  to approximate  $f(-0.5)$ .

**Answer:**  $f(-0.5) \approx$  \_\_\_\_\_

- c. [3 points] Is your answer from part (b) an overestimate or an underestimate of the actual value of  $f(-0.5)$ ? Justify your answer.

Circle one:    overestimate            underestimate            CANNOT BE DETERMINED

**Justification:**