

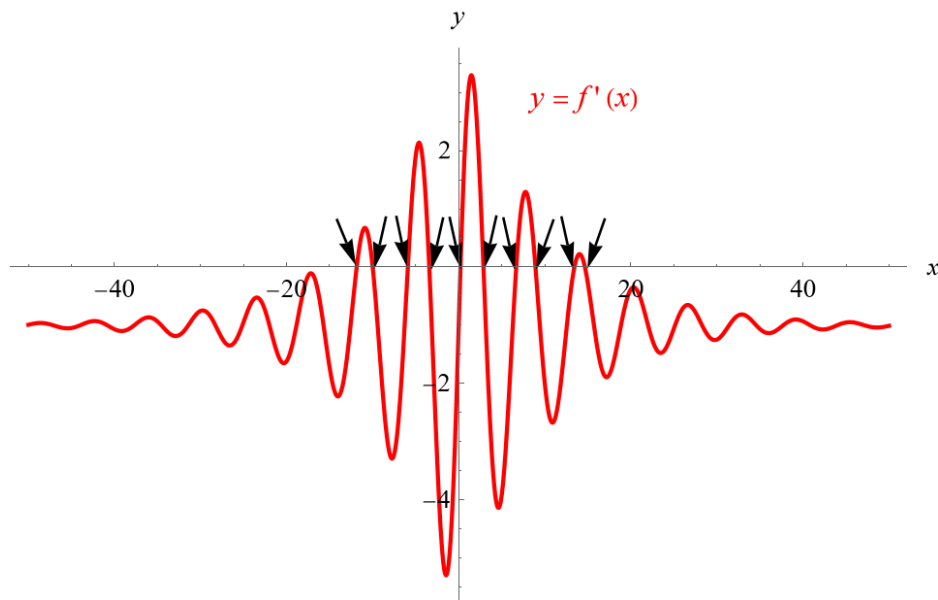
### Exercise 45

A formula for the *derivative* of a function  $f$  is given. How many critical numbers does  $f$  have?

$$f'(x) = 5e^{-0.1|x|} \sin x - 1$$

#### Solution

A critical number is a value of  $x$  for which the derivative is zero or nonexistent.



There are ten places where the graph crosses the  $x$ -axis and no places where the graph does not exist. Therefore, there are ten critical numbers.