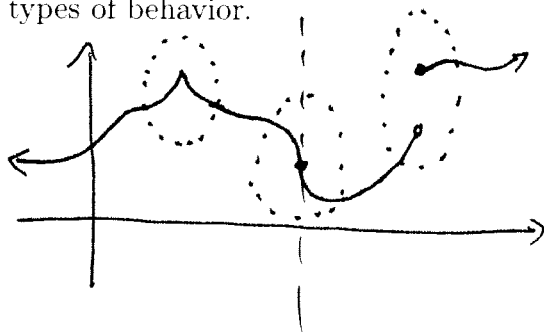


Write your name on this quiz

1. There are three types of behavior that the graph of a function can exhibit at a point at which its derivative does not exist. Draw the graph of a function that shows each of these three types of behavior.



- corners
- vertical tangent lines
- jumps

2. Suppose that  $C(x)$  represents the cost in dollars to make  $x$  barrels of hair gel for monkeys.

(a) Explain what we mean when we say “the marginal cost.”

$C'(x)$ . It is the amount to produce one more item.

(b) Suppose that  $C'(10) = 17$ . What are the units for “17,” and what is the significance of this number to the cost function  $C$ ?

17 \$/barrel. Means that at a production level of 10 barrels, it should cost about \$17 for the next barrel.

3. If the tangent line to the graph of  $y = f(x)$  is horizontal at the value  $x = 3$ , then what can you say about  $f'(3)$ ?

$$f'(3) = 0.$$

(Equivalently,  $f'(x)$  crosses the x-axis at  $x=3$ .)