

Quiz 10

Suppose you have differentiated a function $f(x)$ and found that

$$f'(x) = \frac{(x + 3)^2}{(x - 2)(x - 3)}.$$

Find the intervals over which f is increasing.

Solution: The critical numbers are $x = -3$, $x = 2$, and $x = 3$. Pick test points in each of the four intervals determined by these three points. Note that f' is positive in the leftmost and rightmost intervals and does not change signs at $x = -3$, so f is increasing on $(-\infty, -3)$, $(-3, 2)$ and $(3, \infty)$.