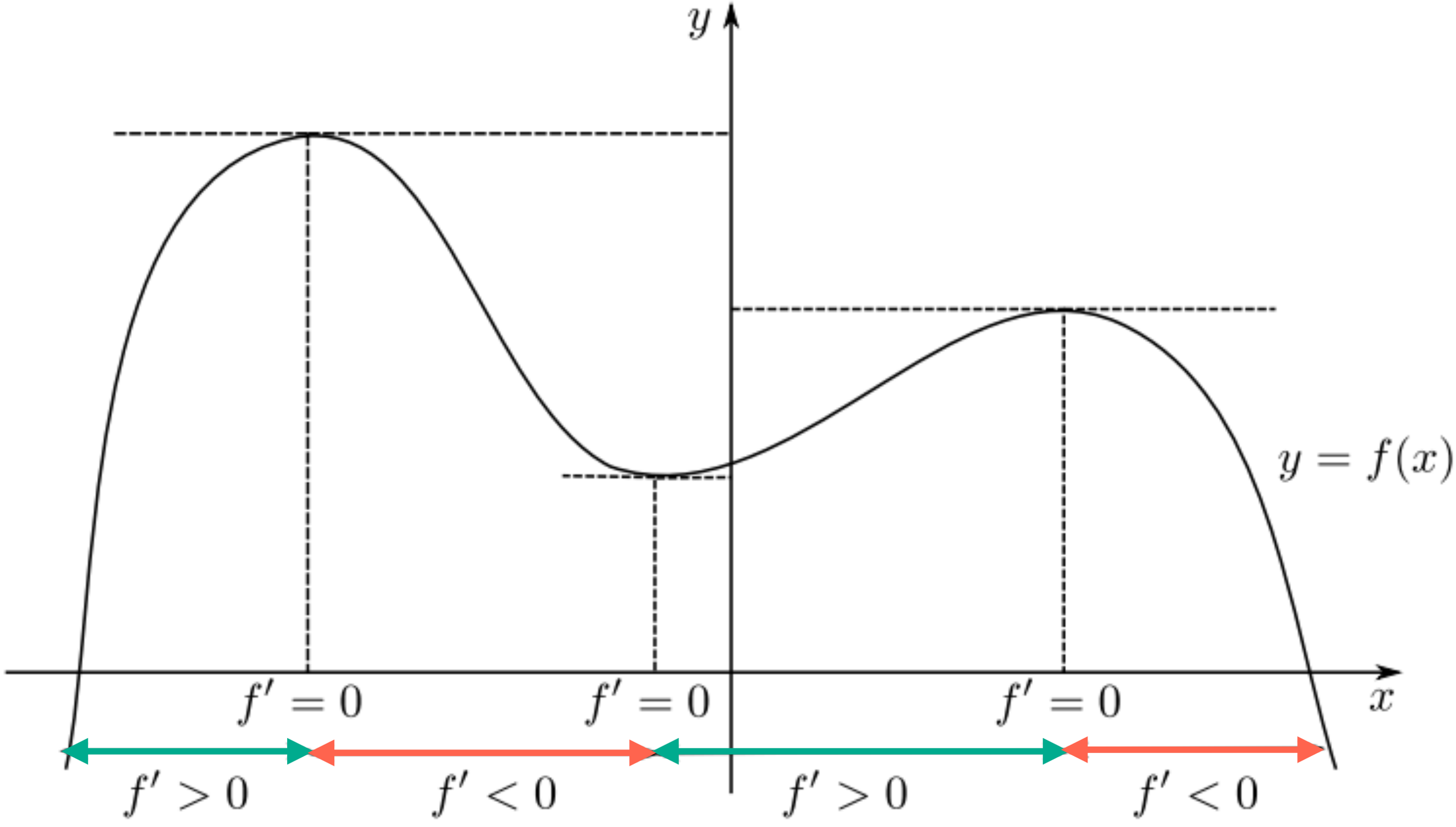
maxima and minima

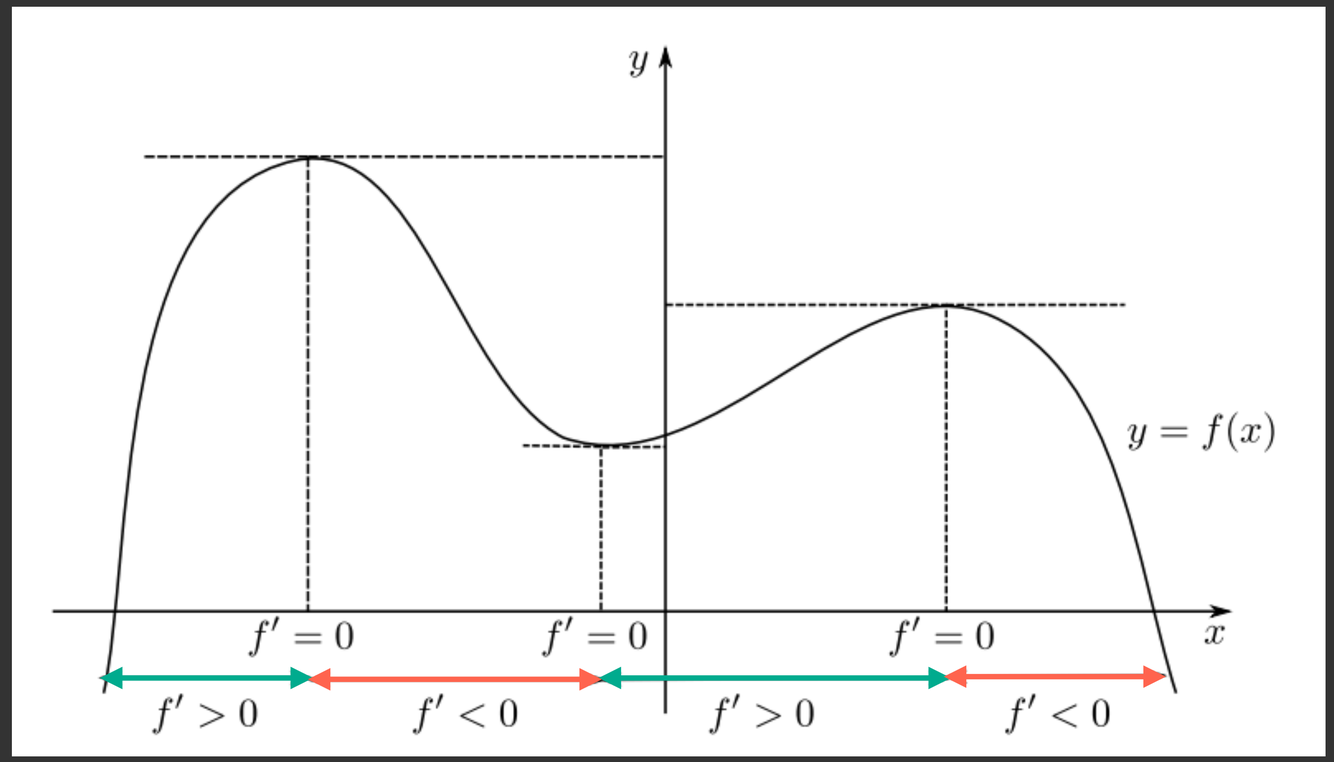
- if $f(x)$ is increasing, then $f'(x) > 0$
- if $f(x)$ is decreasing, then $f'(x) < 0$


y
y = f(x)
x
f′ = 0
f′ = 0
f′ = 0
f′ > 0
f′ < 0
f′ > 0
f′ < 0

maxima and minima

given some function f, where does it achieve its maximum or minimum values?

- if $f(x)$ is increasing, then $f'(x) > 0$
- if $f(x)$ is decreasing, then $f'(x) < 0$



- we have troughs and humps occur at places through which f' changes sign (where $f'(x) = 0$)
- The derivative gives us a way to look for maximum and minimum values of a function.

second derivative