

### Continuous but not Smooth

Find values of the constants  $a$  and  $b$  for which the following function is continuous but *not* differentiable.

$$f(x) = \begin{cases} ax + b, & x > 0; \\ \sin 2x, & x \leq 0. \end{cases}$$

In other words, the graph of the function should have a sharp corner at the point  $(0, f(0))$ .

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