The geometric interpretation of f'':

the second derivative test for local extreme values.

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1. If $f''(x) > 0$ then the slope of the tangent line is increasing in value
   $\implies$ if $f'(c) = 0$ and $f''(c) > 0$, then around c, $f(x)$ is a trough/valley
   $\implies$ we can expect a local minimum value of f at c

possible shapes:

the second derivative test for local extreme values.