

Some Applications of Derivatives

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We can use the derivatives to find the minimum and maximum of functions. Suppose we want to find the minimum and maximum of a function $f(x)$. In these examples, the procedure to is as follows.

Step 1: Find and simplify $f'(x)$

Step 2: Solve $f'(x) = 0$. Suppose that the solution is $x = c$.

Step 3: Calculate $f''(x)$ and evaluate $f''(c)$.

- If $f''(c) < 0$, $f(x)$ is maximized at $x = c$.
- If $f''(c) > 0$, $f(x)$ is minimized at $x = c$.

Minimize the average cost.

Example:

Assignment

Maximize the revenue

Example

Assignment

Maximize the profit

Example

Assignment