Problem Definition

Problem 33. Find the second derivative of the following function and solve the equation $f''(x) = 0$.

$$f(x) = x^3 - 9x^2 + 27x - 27$$

Solution Step 1:

The first derivative of the function is

$$f'(x) = 3x^2 - 18x + 27$$

Using this result we can compute

$$f''(x) = 6x - 18$$

to find the second derivative.

Solution Step 2:

The solution we need comes from

$$f''(x) = 6x - 18 = 6(x - 3) = 0$$

The solution is $x = 3$.