

Problem Definition

Problem 11. Find the derivative of the following function.

$$f(t) = -3t^2 + 2t + 4$$

Solution Step 1:

Since the function is a polynomial, we can compute the derivative term by term. and factor constants through the derivative. That is,

$$\frac{df}{dt} = \frac{d}{dt}(-3t^2) + \frac{d}{dt}(2t) + \frac{d}{dt}4 = -3\frac{d}{dt}t^2 + 2\frac{d}{dt}t + \frac{d}{dt}4$$

Solution Step 2:

Now we can use the power rule to compute the derivative of each term. The derivative is

$$\frac{df}{dt} = -3(2t) + 2(1) + 0 = -6t + 2$$