5.7-Antiderivatives

F is an antiderivative of f if and only if

Antiderivative Rules:

Derivative	Original Function	Derivative	Original Function

Examples:

Find the most general antiderivative of $f(t) = \sec^2 t - t^3 + 10$

Find the most general antiderivative of $f(x) = \sqrt{x} + \dfrac{1}{\sqrt{x}} - \dfrac{1}{\sqrt{1-x^2}}$

Find f if $f'(x) = \dfrac{(x^2-4)^2}{x}$, $f(1) = 0$

A force with magnitude 20 N acts in the positive y direction on an object with mass 4 kg. The object starts at the origin with initial velocity $\mathbf{v}(0) = \mathbf{i} - \mathbf{j}$. Find its position function and speed at any time t.

On Your Own: #3, 7, 9, 15, 17, 21, 23, 27, 31, 37, 39, 41, 43, 45, 49, 59, 61, 65, 71, 73, 79