

Constant Multiple Rule ... Set 1

1) Find the derivatives of the following functions:

(a) $f(x) = 4x^5 - 8x^3 + x^2 - x + 7$

(b) $f(t) = 3\sqrt{t} + \frac{4}{\sqrt[3]{t}}$

(c) $f(x) = \frac{x^4 - 2x + \sqrt{x} - 3}{x}$ (Hint: First rewrite.)

2) Verify the sum rule.

HINT: Let $s(x) = f(x) + g(x)$. The sum rule says that $s'(x) = f'(x) + g'(x)$. Use the definition of the derivative (as applied to the function s) to show that this equation holds. (It might help to study the verification of the constant multiple rule.)