Answer on Question #68895 – Math– Calculus

Question

Differentiate with respect to x:

$$f(x) = ax^3 + bx.$$

Solution

From the table of derivatives:

$$(\mathrm{c})' = 0;\ \ (x)' = 1;$$
$$(\mathrm{c}\cdot f(x))' = \mathrm{c}\cdot f'(x);$$
$$(x^n)' = nx^{n-1};$$

In our case x is a variable and a, b are constants,

so $f'(x) = (ax^3 + bx)' = (ax^3)' + (bx)' = a(x^3)' + b(x)' = a\cdot(3x^2) + b\cdot 1 = 3ax^2 + b.$

Answer: $f'(x) = 3ax^2 + b.$