Derivatives

Question 1. *Calculate the derivative of the following functions:*

- $f_0(x) = 3x^2$
- $f_1(x) = 5x^2 - 18$
- $f_2(x) = 5x^2 - 18x + 39$
- $f_3(x) = sin(x)$
- $f_4(x) = sin(x) * x^2$
- $f_5(x) = \frac{5x^3 - 2x + 1}{2x - 7}$
- $f_6(x) = ax^2 + bx + c$

Question 2. *Calculate the second order derivative of the same functions:*

- $f_0(x) = 3x^2$
- $f_1(x) = 5x^2 - 18$
- $f_2(x) = 5x^2 - 18x + 39$
- $f_3(x) = sin(x)$
- $f_4(x) = sin(x) * x^2$
- $f_5(x) = \frac{5x^3 - 2x + 1}{2x - 7}$
- $f_6(x) = ax^2 + bx + c$

Question 3. *Find the anti-derivative of the following functions:*

- $g_0(x) = 3x^2$
- $g_1(x) = 5x^2 - 18$
- $g_2(x) = 5x^2 - 18x + 39$
- $g_3(x) = sin(x)$
- $g_4(x) = ax^2 + bx + c$