

YOUR NAME: _____

George Voutsadakis

Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Consider the function $f(x) = (x^3 - 3x^2)(x^2 + 1)$.
 - (a) Find the derivative $f'(x)$ without using the product rule.

- (b) Find the derivative $f'(x)$ using the product rule.
(Compare your answers in (a) and (b) to check they are correct.)

2. Find an equation for the tangent line to the graph of $f(x) = \frac{x + 17}{x^2 - 3}$ at the point $x = -1$.