

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 functions  $f(x) = 3x^2 - 3$  and  $g(x) = 2x + 5$ .

(a) Find the points where the graphs of  $f$  and  $g$  intersect without graphing.

(b) Find the area of the region enclosed by the graphs of  $f$  and  $g$ .

2. Compute the following integrals using substitution.

(a)  $\int (x^5 + 5x)^3 (x^4 + 1) dx =$

(b)  $\int \frac{1}{2} x e^{-x^2+7} dx =$