

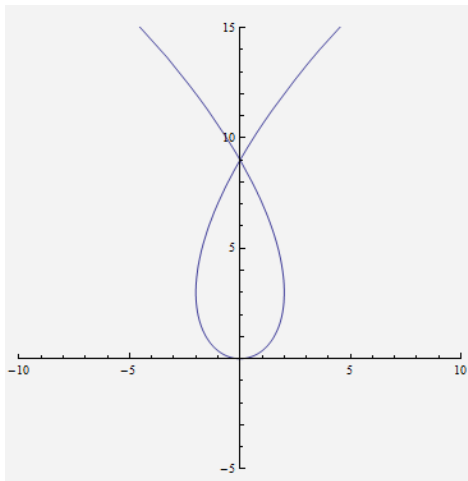
YOUR NAME: _____

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. Use **parametric calculus** to find the length of the loop given by the parametric curves

$$\begin{cases} x = 3t - t^3 \\ y = 3t^2 \end{cases}.$$



2. Find the area enclosed by one petal of the 5-leaved rose $r = 3 \sin 5\theta$.

