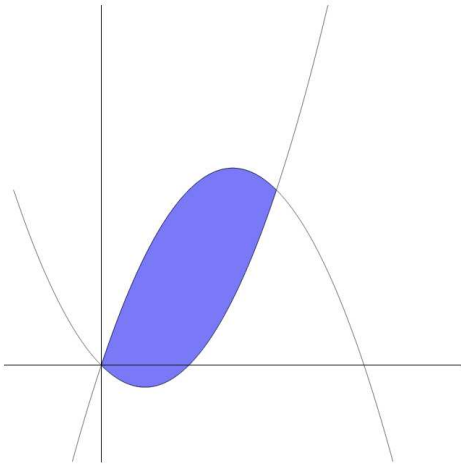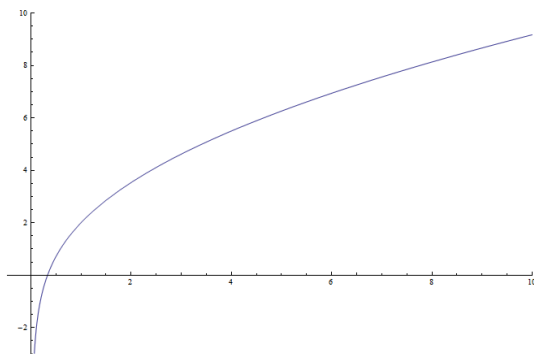Read each problem **very carefully** before starting to solve it. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Find the area of the region enclosed by the graphs of the functions $f(x) = x^2 - x$ and $g(x) = -x^2 + 3x$.

2. Find the average value of $f(x) = 3\sqrt{x} - \dfrac{1}{\sqrt{x}}$ over the interval $[1, 9]$.

3. Use substitution to compute the integral

$$\int x(x^2 + 9)dx.$$