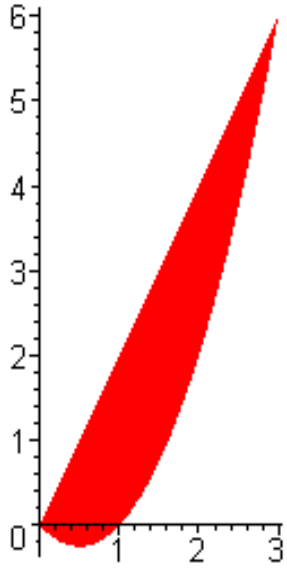
MAT 91121-22 Opgave E2

Preben Alsholm

27/5 1997

Vi skal skitsere området mellem kurverne $y = x^2 - x$ og $y = 2x$.



For planintegralet finder vi

$$\begin{aligned}\iint_S \left(3y^2 - 2y\left(x^2 - x\right)\right) dA &= \int_0^3 dx \int_{x^2-x}^{2x} \left(3y^2 - 2y\left(x^2 - x\right)\right) dy \\ &= \int_0^3 \left[y^3 - y^2\left(x^2 - x\right)\right]_{x^2-x}^{2x} dx \\ &= \int_0^3 \left(12x^3 - 4x^4\right) dx = \frac{243}{5}.\end{aligned}$$