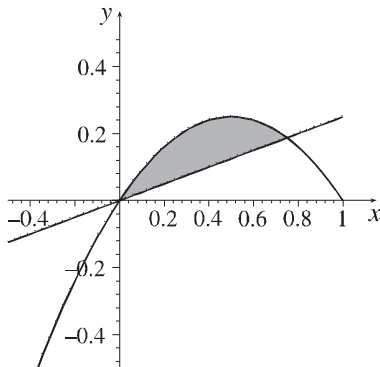


GROUP WORK 2, SECTION 15.3

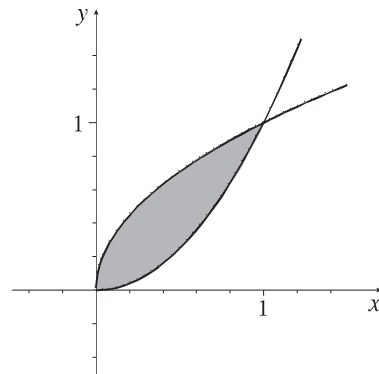
Fun with Double Integration

1. Write double integrals that represent the following areas.

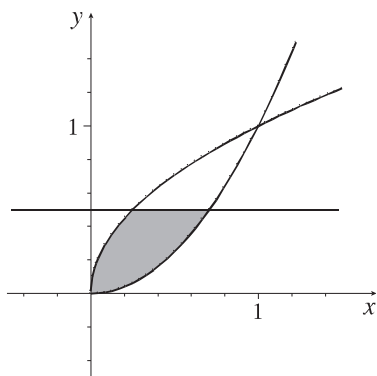
- (a) The area enclosed by the curve $y = x - x^2$ and the line $y = \frac{x}{4}$



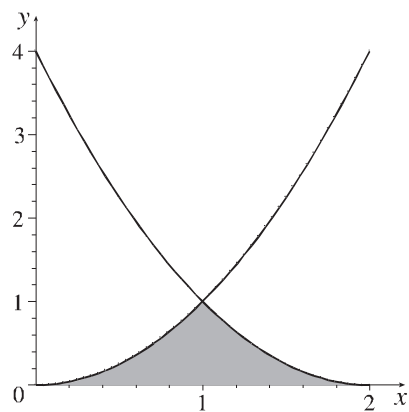
- (b) The area enclosed by the curves $y = \sqrt[4]{x}$ and $\sqrt{y} = x$



- (c) The area enclosed by the curves $y = \sqrt{x}$ and $\sqrt[4]{y} = x$, and the line $y = \frac{1}{2}$



- (d) The area enclosed by the curves $y = x^2$ and $y = (x - 2)^2$, and the line $y = 0$



2. What solid region of \mathbb{R}^3 do you think is represented by $\int_{-1}^1 \int_{-\sqrt{1-x^2}}^{\sqrt{1-x^2}} \sqrt{1-x^2-y^2} dy dx$?