MA121, Homework #7

due Thursday, Apr. 23 in class

- **1.** Find the area of the region that lies between the graphs of f(x) = 4x and $g(x) = 2x^2$.
- 2. Let R be the region between the graph of $f(x) = \cos x$ and the x-axis over $[0, \pi]$. Find the volume of the solid obtained upon rotation of R around the x-axis.
- **3.** Let R be the region between the graph of $f(x) = e^x 1$ and the x-axis over [0, 1]. Find the volume of the solid obtained upon rotation of R around the x-axis.
- 4. In each case, compute the limit or else show that it does not exist:

$$\lim_{(x,y)\to(0,0)} \frac{xy}{x^2+2y^2}, \qquad \lim_{(x,y)\to(0,0)} \frac{x^2y}{3x^2+y^2}, \qquad \lim_{(x,y)\to(2,1)} \frac{2x^2-xy-6y^2}{x-2y}$$

- You are going to work on these problems during your Friday tutorials.
- When writing up solutions, write legibly and coherently. Use words, not just symbols.
- Write both your name and your tutor's name on the first page of your homework.
- Your tutor's name is Thomas, if you are a TP student; otherwise, it is Christian.
- Your solutions may use any of the results stated in class (but nothing else).
- NO LATE HOMEWORK WILL BE ACCEPTED.