Practice Problems

These problems are not to be handed in, but try them first; also try the even problems if you need more practice.

- From §5-5 (pages 330&331): 1–9 odd, 11, 15, 17–31 odd;
- From §5-6 (pages 340&343): 11, 13, 19–29 odd, 33, 35, 37.

The answers to these should be in the back of your textbook.

Due Problems

These problems are due April 26 Thursday.

In each problem (or part thereof), show *at least* what algebraic equation or equations you solve, as well as your final answer in words (with correct units).

1 Suppose that research for a small automobile company suggests that the annual revenue from selling x cars per year will be $40\,000\,x - 50\,x^2$ dollars, while the annual cost of producing x cars per year will be $1\,000\,000 + 10\,000\,x$ dollars.

a. If the marketing department tries to maximise revenue, what goal will they set as the number of cars to sell in a year?

b. How many cars should actually be manufactured and sold in a year in order to maximise profit for the company?

2 In the countryside between two polluted metropolises (LA and SD), the pollution is worse nearer the city and better farther out in the country. A simple model of pollution says that the pollution from LA is $800/x^2$ ppm at a point x miles from LA, while the pollution from SD is $1000/y^2$ ppm at a point y miles from SD. The distance between LA and SD is 100 miles. Using this model, what point between LA and SD has the lowest pollution? (Give the distance of this point from LA or SD.)