SCHEDULE:

- HW 3.1 is due Friday, Sep 30th, 2011.
- Exam 1 is Today, Sep 26th, 5:00pm-7:00pm in CB106.

Today we will cover the Ch 1 part of the practice exam
Travelling salesman

- A courier travels from city Ashton with coordinates $(0, 0)$ to city Cranston with coordinates $(125, 135)$. He must pass through exactly one of the cities Brady with coordinates $(72, 45)$ or Dalton $(45, 72)$ along the way. Assume he travels a straight line between cities.

- Which city should he pass through (Brady or Dalton) in order to minimize his trip distance from Ashton to Cranston?

- What is the total minimum length of his trip from Ashton to Cranston, taking into account the stop in the city from part (a)?
Point A has coordinates \((7, 3)\), and point B has coordinates \((0, 5)\).

What is the distance from A to B and what is the slope of the line joining A to B?

Suppose that the point C with coordinates \((x, 9)\) is such that the triangle ABC is a right triangle with right angle at B. Determine the value of \(x\). (Note: The coordinates of A and B were given at the top of the problem.)
The Flörgerstrøm company makes valve cleaning units for flügelhorns. The cost function for their manufacturing line is $C = 2x + 3500$, where $x$ is the number of VCU$s$ produced per month and $C$ is measured in dollars. The company expects $7$ in revenue per unit.

Determine the linear profit function for the Flörgerstrøm company in the usual form $P = mx + b$, assuming they can sell all the units they manufacture.

Determine the break-even value for $x$ and the break-even cost $C$ at that value for $x$. 
In a free market, the supply equation for a supplier of corn is
\[ x = 35p + 200 \]
where the price \( p \) is in dollars and \( x \) is in bushels. When the price is $4 per bushel the demand is 1170 bushels. When the price goes up to $18 per bushel the demand drops to 0 bushels. Assuming that the demand equation is also linear, find the equilibrium price and the number of bushels supplied at that equilibrium price.