

## Problem Set 1b: Introduction

Assigned: Tuesday 09/13/11

Due: Tuesday 09/20/11

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### Exercise 1.5:

Supplemental Problems: [http://web.mit.edu/2.20/www/supp\\_notes.html](http://web.mit.edu/2.20/www/supp_notes.html)

Ba2 (also, define and explain the differences between them),

Ba3, Ba4, Ba10, Ba11, Ba12, Ba13

### Exercise 1.6:

Calculate the angle that the velocity vector makes with the x-axis; and a unit vector normal to the streamline at (1, -2) for the following velocity fields when  $t=2s$ , where distances are in meters and  $t$  is in seconds. Find the equation of the streamline that passes through (1, -2) at  $t=2s$  for the flow:

- $V=(x+2) i + xt j$  m/s
- $V=(xy) i - (2y^2) j$  m/s
- $V=(x^2+4) i - y^2t j$  m/s