

Fluid Mechanics

homework for week 1

due: week 3

1. [basic concepts] 60%

Explain the following terms:

- (a) shear stress
- (b) fluid (use shear stress for the definition)
- (c) continuum
- (d) rheology
- (e) steady flow
- (f) internal flow
- (g) laminar flow
- (h) Lagrangian description of fluid motion
- (i) Eulerian description of fluid motion
- (j) material derivative

2. [dimension] 40%

What are the dimension of the following units? Express in terms of the primary quantities such as M, L, t (mass, length, time).

- (a) Newton
- (b) Pascal
- (c) Joule
- (d) Watt