

QUIZ #2

10:30am, November 29 (Friday), 20 minutes, 10 points max
(no books, no notes)

Write your name and Email address on the top of this sheet
Write your answers on the reverse side and/or attach additional sheets as
necessary.

1. Assuming a fixed domain $\Omega \in \mathbb{R}^3$, state precisely (i.e., together with suitable initial and boundary conditions) the initial-boundary value problems for

- (a) Euler equation, and
- (b) Navier-Stokes equation.

[5 points]

2. What are the assumptions required for the validity of

- (a) the potential flow approximation in which $\mathbf{u} = \nabla\phi$ for some $\phi: \Omega \rightarrow \mathbb{R}$ such that $\Delta\phi = 0$,
- (b) Prandtl's boundary-layer approximation?

[5 points]