

# TOTIMERSØVING NR 3 TEP 4105 FLUIDMEKANIKK

Høst 2014

Utført av: (alle i gruppa)

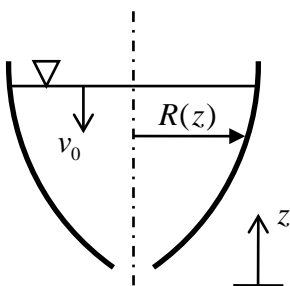
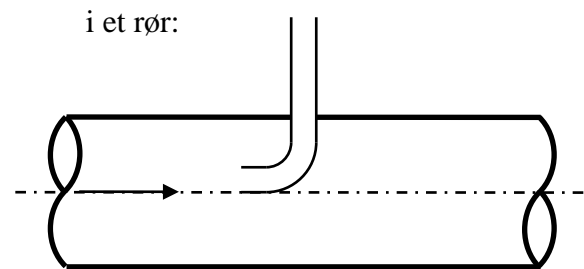
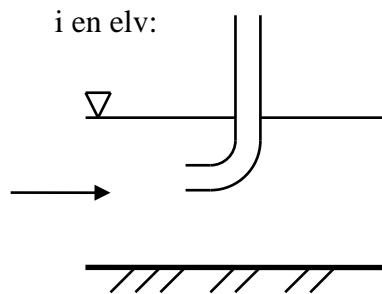
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We want to solve the given problems in a simple way using control volume analysis and Bernoulli. Consider if this is possible in each of the cases and state what approximations must be done. Provide which equations and concepts which must be used.

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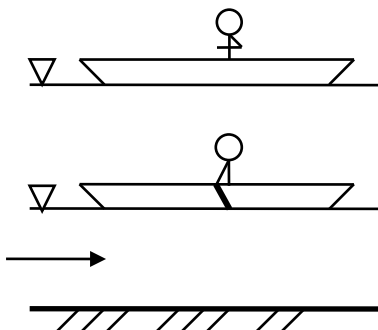
## Oppgave 1

Given the height  $H$  in a pitot-tube, find the velocity of the fluid



## Oppgave 2

We want to create a axisymmetric basin with a radius  $R(z)$  which is chosen such that the water declines with constant velocity  $v$ .

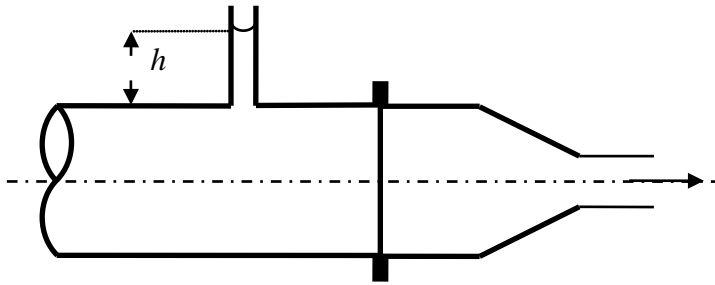


## Oppgave 3

A boat is at a depth  $h$  when it is at rest. How would you go about finding how deep it will be if water flows under it?

### Oppgave 4

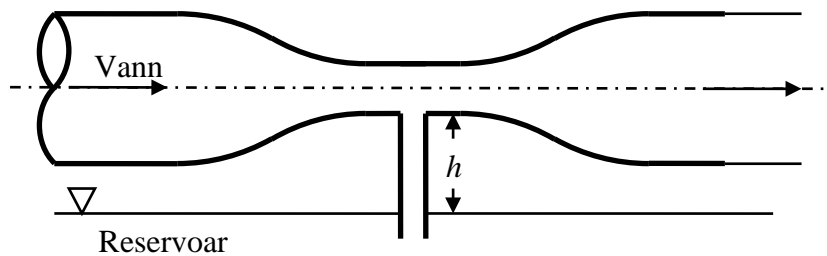
Find the force acting on the nozzle given the height  $h$ .



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### Oppgave 5

Find the velocity of the water so that it water from the reservoir can be lifted a height  $h$ . Is it possible to perform a simple calculation if water is drawn from the reservoir and into the channel?



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### Oppgave 6

A turbine is driven by a jet with velocity  $v$ . At which rotation  $\Omega$  is the effect of the turbine maximal?

