Exercises Bernouilli

1)Tw o large reservoirs are connected. Above the surface there is atmospheric pressure.

a)What is the speed of the liquid at point2?

b)What is the pressure at point 3?



2)A tube has a diameter of 2”.The diameter decreases to 1” and increases in height to 5m.In the tube we have a liquid with density ρ=1200kg/m3. Manometer 1 reads a pressure of 4.8bar. What pressure will we read on manometer 2 if

a)v=0

b)v=2m/s in the 2”tube.



3)In the system of the figure below is running oil with density ρ=761kg/m3 from reservoir A to reservoir B. In the pipe we have losses considered as written below

Calculate

a)the flow

b)the pressure in point C



4)In the figure below oil is running from the reservoir. Diameter of the pipe is 30mm and length 6m.

Viscosity of the oil is 75cSt. Calculate the flow



5)A suctionduct (k=0.1mm) of a cenrifugalpump has a diameter of 200mm and is composed of

- a straight tube of length 6m

-a suction filter with a non return valve type 1(s/t=0.2)

-a curve with radius 400mm

Through the duct flows 60l water per second at a temperature of 15°C. Calculate the underpressure in section 2.



6)A simple duct with diameter 300mm and a length of 1500m connects two reservoirs with a difference in height of 20m. through this duct there is a flow of 0.14m3/s. calculate the new flow if the systems changes like in the figure below.



7)In the installation as drawn below the pump has to deliver a flow of 015m3/s.

Calculate

a)resistance of the different ducts

b)flow in the different ducts

c)pressure in A and E

d)the lift and the power of the pump

