**Formula sheet Exam 2**

**Constants**

Water γ =9790 N/m3 =62.4 lbf/ft3

g=9.8 m/s2 = 32.2 ft/s2

Atmosphere= 101.3kPa = 14.7 psi

**Mass conservation**

ρ = P/ (TR)

 $\dot{m}=ρVA=ρQ$



$$\frac{dmcv}{dt}=\sum\_{in}^{}\dot{\dot{m}i-\sum\_{out}^{}\dot{me}}$$

∑ m`in  = ∑ m`out

**The Linear Momentum Equation**



$$\sum\_{}^{}F=\sum\_{out}^{}\dot{m}V-\sum\_{in}^{}\dot{m}V$$

**Angular momentum**





**Energy equation**



$$\dot{W}pump=\dot{m}ghp=ρgQhp=γQhp$$

HGL=z + p/ϒ

EGL = HGL + *V*2/(2*g*)

**Bernoulli’s equation**



**Dimensions**

