

ENGR 335

KEY WORDS FOR CH 6

momentum	water hammer	stream thrust
surface force	water-hammer pressure	pressure thrust
body force	pressure wave	
pressure force	speed of pressure wave	first order modeling
reaction force	critical time of closure	engineering approximations
weight	rarefaction wave	
vane		Navier-Stokes equations
nozzle		

STUDY QUESTIONS

1. What assumptions were made in the application of the momentum equation to find the forces on vanes, bends, and nozzles?
2. Describe in words the meaning of each term in the momentum equation (eqn. 6.5). Give examples of surface forces and body forces.
3. We have used the Bernoulli equation, the continuity equation, the energy equation, and the momentum equation to solve fluid flow problems. Develop a strategy to decide which equation(s) should be used to solve a given problem.
4. Give two ways that effects of water hammer can be minimized.
5. Which term in the momentum equation is the most significant contributor to rocket thrust?