

SOUTHERN ILLINOIS UNIVERSITY
Department of Civil and Environmental Engineering

CE 370- Fluid mechanics
Summer 2009

Assignment-7

Date Assigned: July 29, 2009

Date Due: August 5, 2009

1. From Engineering Fluid Mechanics, Crowe and Roberson, 8th Edition: Problem 10.10.
2. From Engineering Fluid Mechanics, Crowe and Roberson, 8th Edition: Problem 10.43.
3. Points A and B are 3 miles apart along a 24-in diameter new cast-iron pipe carrying water. Point A is 30 ft higher than B and the pressure at B is 20 psi greater than that A. What is the direction and rate of flow in the system?
4. Water is to flow at a rate of $1.0 \text{ m}^3/\text{s}$ through a rough concrete pipe ($k_s=3 \text{ mm}$) that connects two lakes. Determine the diameter of pipe needed if the elevation difference between the lake water surfaces is 10 m and the pipe length is 1,000m. Neglect minor losses.