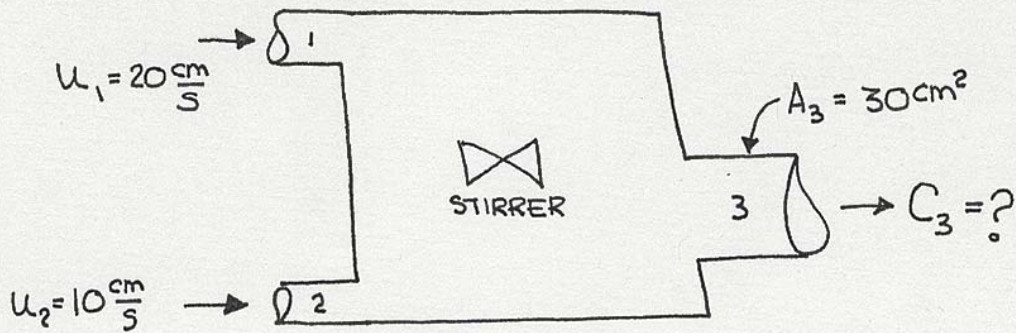


PROBLEM 1.6



TWO PIPES, EACH OF 10 cm^2 CROSS-SECTION, CARRY WATER INTO A MIXING CHAMBER. THE UPPER PIPE CARRIES WATER SATURATED IN OXYGEN ($C_1 = 9 \text{ mg/l}$), AND THE LOWER PIPE CARRIES DEOXYGENATED WATER ($C_2 = 0 \text{ mg/l}$). A STIRRER WITHIN THE CHAMBER RAPIDLY MIXES THE TWO STREAMS, SUCH THAT THE CONCENTRATION IN THE TANK IS SPATIALLY UNIFORM. ASSUMING THE SYSTEM IS AT STEADY STATE, WHAT IS C_3 ?