



**Exam Math Review
Collection Systems
Grades III & IV
Practice Problems**

*The Division of Water Quality
makes no claim as to the
accuracy of any answers
provided herein.*

9. If it takes dye 3 minutes 42 seconds to go between two manholes, and the manholes are 400 feet apart. What is the velocity of the wastewater?

Math Problems - Head

10. How much pressure does 10 feet of head generate?
11. If a pump must lift wastewater 28 feet, and the pressure sewer line is 2,250 feet. Head loss in the sewer line is 4 feet per 1,000 feet of line. How many pound of pressure must the pump deliver for the wastewater to flow?
12. If a 125 gpm pump is driven by a 3 horsepower motor. The efficiency of the pump is 80% and the motor is 50%. What is the maximum head that the system deliver?

17. If a wet well has two 100 gpm pumps in it. How many gallons of wastewater can be pumped a day if one of the pumps is 85% efficient and the other is 75% efficient?

Math Problems - Chlorine Equation

18. What is the chlorine feed rate per day for a flow of 1.5 MGD with a dose rate of 15 mg/L.
19. How many pounds of TSS are received in the collection system daily, if the system flow is 900,000 gpd and the TSS concentration is 195 mg/L?
20. Chlorine is used in the system for "freshening". If the chlorine demand is 9 mg/L and the desired residual is 0 mg/L. The flow through the system is 1.5 ft³/s. How many pound of chlorine are used a day?

