Problem 1

A tank holds 100 gal of brine containing 30 lbs of salt. Fresh water is added to the tank at a rate of 3 gallons every minute, and at the same time 3 gallons flow out of the tank (every minute).

a) Find the salt content after 10 minutes.

b) When will the salt content be 15 pounds?

Problem 2

Same setup at problem 1 only 2 gallons of freshwater are added per minute instead of 3.

a) Find the salt content after 10 minutes.

b) When will the salt content be 15 pounds?

Problem 3

Same setup at problem 1 only 4 gallons of freshwater are added per minute instead of 3.

a) Find the salt content after 10 minutes.

b) When will the salt content be 15 pounds?

Problem 4

The CO_2 content on the air in a 5000 ft^3 room is .3 percent. Fresh air containing .1 percent CO_2 is pumped into the room at a rate of of 1000 ft^3/min.

a) Find the percentage of CO_2 in the room after 30 minutes.

b) When will the CO_2 content be .2 percent?