1. A 500 gal holding tank initially contains 300 gal of water with a salt concentration of 0.20 lb per gallon. Water containing 1 lb of salt per gallon enters at a rate of 3 gal/min, and the well-stirred mixture is allowed to flow out of the tank at a rate of 2 gal/min. Find the amount of the salt in the tank (in lbs) at the moment the water begins to overflow.

2. A tank with a capacity of 500 gal originally contains 400 gal of water with 5% salt dissolved in it. Water containing 1 lb of salt per gallon enters at a rate of 2 gal/min, and the mixture is allowed to flow out of the tank at a rate of 4 gal/min. Find the amount of the salt in the tank (in lbs) after 10 minutes of this process.