Pre-Calculus Mixture Problems

1. How many kilograms of a 30% salt solution and how many kilograms of a 15% salt solution must be mixed together to make a 60 kg of a 20% salt solution?
2. How many liters of a 10% alcohol solution and how many liters of a 20% alcohol solution must be mixed together to make a 10 L of a 12% alcohol solution?
3. How many kilograms of a 5% salt solution and how many kilograms of a 15% solution must be mixed together to make 45 kg of an 8% salt solution?
4. Peanuts worth $4/kg were mixed with almonds worth $7/kg to produce 11.5 kg of nuts worth $55. How many kilograms of each type of nut was used?
5. A jeweler wants to make 8 grams of a mixture that is 75% gold. He has an alloy that is 90% gold and an alloy that is 50% gold. How much of each alloy should the jeweler use?
6. Emily mixed together 9 gallons of Brand A fruit drink and 8 gallons Brand B fruit drink which contains 48% fruit juice. Find the percent of fruit juice in Brand A if the mixture contained 30% fruit juice.
7. How many mg of a metal containing 45% nickel must be combined with 6 mg of pure nickel to form an alloy containing 78% nickel?