SELF-ASSESSMENT—cont'd

2. One milliliter of active enzyme is found in 147 ml of solution. What is the percentage strength of active enzyme in the solution?
3. If Valium contained 2% active ingredient, how many grams of the active ingredient would be needed to make 20 g of Valium?
4. You have Isuprel 1:100. How many milliliters of Isuprel would be needed to contain 30 mg of active ingredient?
5. A dose of 0.4 ml of epinephrine HCl, 1:100 is ordered. This dose contains how many milligrams of epinephrine HCl? (the active ingredient?)
6. If you administer 3 ml of a 0.1% strength solution, how many milligrams of active ingredient have you given?
7. The maximum dose of Isuprel that may be given by aerosol for a particular patient is 3 mg. The drug is available as a 1:200 solution. What is the maximal amount of solution (in milliliters) of isoproterenol that may be used?
8. How many milliliters of 1:100 epinephrine are needed for a 5 mg dose?
9. How many milligrams are there in a 1 cc dose of 2% Xylocaine?
10. How many milligrams of sodium chloride are needed for 10 ml of a 0.9% solution?
11. If you have 5 mg/ml of Xylocaine, what percentage strength is this?
12. A 0.5.% strength solution contains how many milligrams in 1 ml?
13. Cromolyn sodium contains 20 mg in 2 ml of water. What is the percentage strength?
14. How much active ingredient of acetylcysteine (Mucomyst) have you given with 4 cc of a 20% solution?
15. You have 20% acetylcysteine; how many milliliters do you need of this to form 4 ml of 8% solution?
16. The recommended dose of metaproterenol 5% is 0.3 cc. How many milligrams of solute are there in this amount?
17. Mucomyst brand of acetylcysteine was marketed as 10% acetylcysteine with 0.05% isoproterenol. How many milligrams of each ingredient were in a 4 cc dose of solution?
18. Which contains more drug: 0.5 cc of 1% drug solution with 2 ml of saline, or 0.5 cc of 1% drug solution with 5 ml of saline?
19. How many milligrams per milliliter are in a 20% solution?
20. On an emergency cart, you have sodium bicarbonate solution ($NaHCO_3$), 44.6 mEq/50 ml. A physician orders an aerosol of 5 cc and 3.25% strength. How many milliliters of the bicarbonate solution do you need?

    1 mEq = 1/1000 GEW; GEW = gram formula wt/valence
    Atomic weights: Na, 23; H, 1; C, 12; 0, 16

IV Infusion rates

Assume a Drop Factor of 15 drops = 1 ml

1. You wish to give a solution of 500 mg/L of dobutamine, at a rate of 10 μg/kg/min, to a 50 kg woman. What drip rate will you need?
2. If you have 2 mg of isoproterenol in 500 ml of solution, and you wish to deliver 5 μg/min IV, what drip rate is needed?
3. You have 250 mg of dobutamine in 1 L of solution. You want to deliver 5 μg/kg/min to a 60-kg man. What infusion rate in ml/min, and in drops/min, is needed?
4. You have 250 ml of 5% dextrose in water (D_5W) and a drip rate of 15 drops/minute. How long will the bag of solution last?
5. You have epinephrine solution, 1 mg in 250 ml. What drip rate is needed to deliver 4 μg/min?
6. If you wish to deliver 500 ml of a solution in 1 hour and 40 minutes, what drip rate should you set?
7. A recommended dose of epinephrine IV is 15 ml/hour, using a solution of 4 μg/ml. What drip rate is needed to achieve the recommended infusion rate?