# Learning Enhancement Team – Mathematics & Statistics

Pharmaceutical Calculations 1

## Conversions

1. Convert the following into the given unit
2. 7.25 g into mg
3. 0.0444 mg into mcg
4. 93400 ml into l
5. 65000 ng into mcg
6. 0.000234 g into mcg
7. 250000 mg into kg
8. 45 g into ng
9. 123 mcg into g

## Recipes

1. You have the following formula to create 250 ml of something medical sounding:

Ingredient A: 25 g

Ingredient B: 125 g

Ingredient C: 10 ml

Water to 250 ml

1. How much of each component is needed to create 750 ml of the formula?
2. How much of each component is needed to create 2 l of the formula?
3. How much of each component is needed to create 50 ml of the formula?

## Concentrations

1. If a mixture is to be 20 mg/ml, how many mg are required to make 50 ml?
2. If a mixture is to be 5 mg/ml, how many g are required to make 1 litre?
3. If a mixture is to be 40 g/100 g, how many g are required to make 1 kg of the mixture?
4. If a medicine is described as 2 mg/ml, how many ml are required for a patient to receive a dose of 800 mcg?
5. If a medicine is described as 20 g/ 100 ml, how many ml are required for a patient to receive a dose of 450 mg?
6. If a medicine is described as 8 g/ 100 ml, how many mg are given if a patient receives a dose of 15 ml?
7. If a mixture is 10% w/v, how much active drug is required to make 250 ml of the mixture in g?
8. If a mixture is 5% w/v, how much active drug is required to make 5 ml of the mixture in mg?
9. If a mixture is 15% v/v, how many ml of active drug is required to make 40 ml of the mixture? How many ml of the mixture will not be active?
10. If a mixture is 0.2% w/v, how much is required to give a dose of 20 mg?
11. If an injection is 2% w/v and a 50 kg patient requires 40 mcg per kg, how much of the injection is required in ml?
12. If an injection is 5% w/v and an 80 kg patient requires 500 mcg per kg, how much of the injection is required in ml?
13. If an injection is 5 mcg/ml and a 50 kg patient requires 500 ng per kg, how much of the injection is required in ml?
14. A patient requires 2 mg/kg/minute of a drug that is 1% w/v. How much of the drug, in ml, is required for a 50 kg patient per hour?
15. A patient requires 5000 ng/kg/minute for 10 hours, of a drug that is 2% w/v. How much of the drug, in ml, is required for a 70 kg patient?