Drug Calculations

Even more of the maths!
(Forgive me - this is cheesy and ridiculous!)

For realsies.

Calculating drugs is super duper schmooper fun!

You may be given a dose in ___mg

You may be given a dose in ___mg/kg

You may be given a dose in other formats too.

Doses in _____mg

Example: Give 30mg Codeine PO.

Codeine is a pill. It comes in 15mg tablets and 30mg tablets.

What I want = 30mg
What I have = 30mg tablets

30mg ÷ 30mg = 1 tablet

What you want ÷ what you have

OR

What you want
What you have

Doses in _ _ _ _ mg

Example: Give 18.75mg Clopidogrel PO.

Clopidogrel is a pill. It comes in 75mg tablets.

What I want = 18.75mg

What I have = 75mg tablets

18.75mg ÷ 75mg = ¼ tablet

What you want ÷ what you have

OR

What you want
What you have

This works for injectables too!

Doses in _____mg

Example: Give 0.08mg Buprenex IV.

Buprenex is injectable. It comes in a 0.5mg/ml solution.

What I want = 0.08mg

What I have = 0.5mg/ml solution

0.08mg ÷ 0.5mg/ml = 0.16ml

What you want ÷ what you have

OR

What you want
What you have

Doses in _____mg

Example: Give 550mg Unasyn IV.

Unasyn is injectable. It comes in a 375mg/ml solution.

What I want = 550mg

What I have = 375mg/ml solution

550mg ÷ 375mg/ml = 1.47ml

What you want ÷ what you have

OR

What you want
What you have

Even if the units change, you can still calculate your medications the same way.

Doses in _____mcg

Example: Give 35**mcg** Fentanyl IV.

Fentanyl is injectable. It comes in a 50**mcg/ml** solution.

What I want = 35mcg

What I have = 50mcg/ml solution

35mcg ÷ 50mcg/ml = 0.7ml

What you want ÷ what you have

OR

What you want
What you have

Doses in _____mcg

Example: Give 120**mcg** Dexmedetomidine IV.

Dexmedetomidine is injectable. It comes in a 0.5**mg/ml** solution.

What I want = 120mcg

What I have = 0.5mg/ml solution

Convert your dose or your concentration so that your units match

120 mcg ÷ 1000 = 0.12mg   **NOW** → 0.12mg ÷ 0.5mg/ml = 0.24ml

What you want ÷ what you have

OR

What you want
What you have

What do I do about units that are in % form?

Just move your decimal over !

Baytril has a 2.27% concentration

If we want this in mg/ml, we just scoot our decimal over by one space.

= 22.7 mg/ml is the concentration

Just move your decimal over !

Lidocaine has a 2% concentration

If we want this in mg/ml, we just scoot our decimal over by one space.

= 20 mg/ml is the concentration

Just move your decimal over !

Mannitol has a 20% concentration

If we want this in mg/ml, we just scoot our decimal over by one space.

= 200 mg/ml is the concentration

Doses in _____mg/kg

Example: Give 22mg/kg Cefazolin IV. My dog is 72kg.

Cefazolin is injectable. It comes in a 100mg/ml solution.

What I want = 22mg/kg x 72 kg = 1,584mg

What I have = 100mg/ml solution

1584mg ÷ 100mg/ml = 15.84ml

Multiply your mg/kg x kg

What you want ÷ what you have

OR

What you want
What you have

Doses in _____mg/kg

Example: Give 0.1mg/kg
Butorphanol IV. My dog is 19kg.

Butorphanol is injectable. It comes
in a 10mg/ml solution.

What I want = 0.1mg/kg x 19kg = 1.9mg

What I have = 10mg/ml solution

1.9mg ÷ 10mg/ml = 0.19ml

Multiply your mg/kg x kg

What you want ÷ what you have

OR

What you want
What you have

Doses in ____mcg/kg

Example: Give 3mcg/kg Fentanyl IV. My dog is 7.5kg.

Fentanyl is injectable. It comes in a 50mcg/ml solution.

What I want = 3mcg/kg x 7.5kg = 22.5mcg

What I have = 50mcg/ml solution

22.5mcg ÷ 50mcg/ml = 0.45ml

Multiply your mg x kg

What you want ÷ what you have

OR

What you want
What you have

Doses in _____g/kg

Example: Give 0.5g/kg Mannitol IV. My dog is 25kg.

Mannitol is injectable. It comes in a 20% solution.

What I want = 0.5g/kg → 500mg/kg

    500mg/kg x 25kg = 12,500mg

What I have = 20% solution

    20% → 200mg/ml

12,500mg ÷ 200mg/ml = 62.5ml

Multiply your g x kg

What you want ÷ what you have

OR

What you want
What you have