Mini-Test 3: Pharmacy Calculations

1. Ratio Strength

What is the % strength of a **1 in 1500** solution?

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2. mg/kg Dose

A 19-kg child needs **oseltamivir 3 mg/kg twice daily for 5 days**. Suspension is **30 mg/5 mL**.
How much volume is required?

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3. Cost Calculation

Drug A costs **£6.40 per 28 tablets**.
A patient takes **2 tablets daily for 30 days**.
What is the cost?

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4. Infusion Concentration

Mixing **100 mL of 15% w/v** with **300 mL of 5% w/v** gives what final concentration?

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5. Tablets to Supply

A patient is prescribed **co-codamol 30/500**,
2 tablets every 6 hours for 5 days.
How many tablets?

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6. Units of Insulin

A patient injects **42 units daily**. Pens contain **300 units**.
How many days will **3 pens** last?

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7. % w/w Calculation

A 75-g cream contains **1.25 g** of active drug.
What is the % w/w?

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8. Chemotherapy Dose

A patient's BSA is **1.92 m²**.
The regimen requires **120 mg/m²**.
What dose should be dispensed?

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9. Infusion Timing

If an IV drip runs at **35 drops/min**, giving set **20 drops/mL**,
How long to infuse **750 mL**?

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10. mg to mmol

Convert **175 mg of sodium (Mr 23)** to **mmol**.

ANSWERS:

1. **1 in 1500 as % w/v**

- 1 g in 1500 mL
- g per 100 mL = 1/1500 × 100 = 0.0667
  → **≈0.067% w/v**

2. **Oseltamivir volume**

- Dose = 3 mg/kg × 19 kg = 57 mg per dose
- 30 mg/5 mL → 57 mg = 9.5 mL
- BD for 5 days → 10 doses
- Total = 9.5 × 10 = **95 mL**

3. **Cost of Drug A for 30 days**

- 2 tablets/day × 30 days = 60 tablets
- Packs: 60/28 = 2.14 packs
- Cost = 2.14 × £6.40 ≈ **£13.71** (theoretical cost; in practice you'd dispense 3 packs)

4. **Final concentration after mixing 15% & 5%**

- Drug = (15% of 100 mL) + (5% of 300 mL)
- = 15 g + 15 g = 30 g in 400 mL
- 30/400 × 100 = **7.5% w/v**

5. **Co-codamol tablets**

- 2 tablets every 6 h → 4 doses/day → 8 tablets/day
- 5 days → **40 tablets**

6. **Insulin pen duration**

- Total units in 3 pens = 3 × 300 = 900 units

- Daily use = 42 units
- 900 / 42 ≈ 21.4
  → **About 21 days**

7. % w/w of cream

- 1.25 g in 75 g
- 1.25/75 × 100 ≈ **1.67% w/w**

8. Chemotherapy dose

- 120 mg/m² × 1.92 m² = **230.4 mg** (≈230 mg)

9. Infusion time at 35 drops/min

- 20 drops/mL → 35 drops/min = 1.75 mL/min
- Time = 750 / 1.75 = 428.6 min ≈ 7.14 h
  → **≈7.1 hours**

10. 175 mg sodium to mmol

- Mr Na = 23
- mmol = 175 / 23 ≈ **7.61 mmol**