ORAL DOSAGE CALCULATIONS

WORKSHEET

Warm-up exercise: Your doctor advises that you take 500 mg of Advil whenever you have a headache. You look in your medicine cabinet and notice your bottle of Advil reads, 250 mg tablets. How many tablets should you take?

Givens:
- To consume 500 mg of Advil
- Have 250 mg/tablets

Need to know (specify unit):
- Number of tablets to consume

Math tools:
- Ratio and proportion
- Complete ratio, 250 mg per tablet, 250:1
- Ratio with an unknown value, 500 mg per x tablets, 500:x

Solution:
\[
\frac{mg}{tablets} = \frac{mg}{tablets} \\
\frac{250}{1} = \frac{500}{x} \\
250x = 500 \\
x = \frac{500}{250} \\
x = 2
\]

You should take 2 Advil tablets in order to ingest 500 mg of medication.

In addition to the ratio and proportion method we have a drug dosage formula. The drug dosage formula is a short-cut that can also be used when a doctor orders a desired dose of medication and the medication you have available on hand is in the form of mass per tablet or mass per volume.

Formula:
\[
\frac{D}{H} \times \frac{Q}{V} = X \\
\frac{Desired}{Have} \times \frac{Quantity}{Vehicle} = X
\]
## Oral Dosage Calculations Worksheet

<table>
<thead>
<tr>
<th>Term</th>
<th>Symbol</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desired dose</td>
<td>D</td>
<td>The amount of medication that the physician prescribed.</td>
<td>Doctor orders <strong>500 milligrams</strong> of Drug A.</td>
</tr>
<tr>
<td>Dose on hand</td>
<td>H</td>
<td>The amount of medication that is available to you.</td>
<td>Drug A is available in <strong>250 milligram</strong> tablets.</td>
</tr>
<tr>
<td>Quantity or Vehicle of medication on hand</td>
<td>Q or V</td>
<td>The quantity or vehicle that the drug is available in.</td>
<td>Drug A is available in 250 milligram tablets (1 tablet).</td>
</tr>
<tr>
<td>Unknown Dosage</td>
<td>X</td>
<td>The dosage you are trying to calculate.</td>
<td>The number of tablets to administer.</td>
</tr>
</tbody>
</table>

**Example:** Ampicillin 500 mg capsules are supplied. MD orders 1.5 g. How many capsules should be given to the patient?

<table>
<thead>
<tr>
<th>Givens:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>D = 1.5 g</td>
<td></td>
</tr>
<tr>
<td>H = 500 mg</td>
<td></td>
</tr>
<tr>
<td>Q = 1 capsule</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Need to know (specify unit):</th>
<th></th>
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<tbody>
<tr>
<td>X = Number of capsules to consume.</td>
<td></td>
</tr>
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</table>

<table>
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<tr>
<th>Math tools:</th>
<th></th>
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<tbody>
<tr>
<td>( \frac{D}{H} \times Q = X )</td>
<td></td>
</tr>
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</table>

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<tr>
<th>Solution:</th>
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<tr>
<td>Step 1: Since the desired dose is in grams, but the capsules available on hand are in milligrams, convert 1.5 g into mg.</td>
<td></td>
</tr>
<tr>
<td>1.5 g x 1000 mg/g = 1500 mg</td>
<td></td>
</tr>
<tr>
<td>Step 2: Use the formula to calculate the number of capsules that should be given.</td>
<td></td>
</tr>
<tr>
<td>( x = \frac{1500 \text{ mg}}{500 \text{ mg}} \times 1 \text{ capsule} )</td>
<td></td>
</tr>
<tr>
<td>( x = 3 \text{ capsules} )</td>
<td></td>
</tr>
<tr>
<td>Therefore, 3 capsules of Ampicillin should be given to the patient.</td>
<td></td>
</tr>
</tbody>
</table>
Exercises:

1. Order: 1500 mg
   Have: 500 mg per tab
   Give: ______________

2. Order: 25 mg daily
   Have: 10 mg tabs
   Give: ________________

3. Order: 75 milligrams
   Have: 25 mg/2 mL
   Give: ________________

4. Order: Phenergen 25 mg
   Have: Phenergen 50 mg/mL
   Give: ________________

5. Order: Heparin 500 units
   Have: 10 000 units per milliliter
   Give: ________________

6. Order: Heparin 15 000 units
   Have: Heparin 1000 units/mL
   Give: ________________

7. Order: 3000 mg daily
   Have: 1 g tabs
   Give: ________________

8. Order: 20 mcg
   Have: 0.01 mg capsules
   Give: ________________

9. The doctor orders “ibuprofen 600 mg PO BID”. You have 300 mg tablets of ibuprofen on hand. How many tablets should be given to the patient?

10. The physician ordered “enalapril maleate 7.5 mg PO daily.” You have 5 mg tablets of enalapril maleate available on hand. How many tablets should be given to the patient?
11. Atenolol 0.05 g capsules are supplied. MD orders 100 mg. How many capsules should be given to the patient?

12. The order says “erythromycin suspension 600 mg PO q6h”. The supply on hand is erythromycin 400 mg/5 mL. How many milliliters of medication should be given to the patient?

13. The doctor orders “valporic acid 0.5 g PO TID.” The bottle of valporic acid on hand says 50 mg/mL. How milliliters should be given?

**Answers:**

1. 3 tablets
2. 2.5 tablets
3. 6 mL
4. 0.5 mL
5. 0.05 mL
6. 15 mL
7. 3 tablets
8. 2 capsules
9. 2 tablets
10. 1.5 tablets
11. 2 capsules
12. 7.5 mL
13. 10 mL