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ati Tutorial: Dosage Calculation and Safe Medication Administration 3.0 Module: Safe Dosage CLOSE

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Calculator

Close X

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## Case studies

A nurse is converting a client's weight from pounds to kilograms. What is the client's weight in kilograms?  
(Review the MAR. Round the answer to the nearest tenth.)

79.1

**Step 1**  
What is the unit of measurement the nurse should calculate? (Place the unit of measure being calculated on the left side of the equation.)  
 $X \text{ kg} =$

**Step 2**  
Find the ratio in the item that contains the same unit as the unit being calculated. (Place the ratio on the right side of the equation, ensuring that the unit in the numerator matches the unit being calculated.)  
$$X \text{ kg} = \frac{1 \text{ kg}}{2.2 \text{ lb}}$$

**Step 3**  
Place any remaining ratios that are relevant to the item on the right side of the equation along with any needed conversion factors to cancel out unwanted units of measure.  
$$X \text{ kg} = \frac{1 \text{ kg}}{2.2 \cancel{\text{lb}}} \times \frac{174 \cancel{\text{lb}}}{1}$$

**Step 4**  
Solve for X.  
 $X \text{ kg} = 79.090909 \text{ kg}$

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## Case studies

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A nurse is calculating a dosage of heparin. Available is heparin 25,000 units in 0.9% NaCl 500 mL. The nurse should set the IV pump to deliver how many mL/hr?

(Review the MAR. Round the answer to the nearest tenth.)

✗ 15.3

**Step 1**  
What is the unit of measurement the nurse should calculate? (Place the unit of measure being calculated on the left side of the equation.)

$$X \text{ mL/hr} =$$

**Step 2**  
Find the ratio in the item that contains the same unit as the unit being calculated. (Place the ratio on the right side of the equation, ensuring that the unit in the numerator matches the unit being calculated.)

$$X \text{ mL/hr} = \frac{500 \text{ mL}}{25,000 \text{ units}}$$

**Step 3**  
Place any remaining ratios that are relevant to the item on the right side of the equation along with any needed conversion factors to cancel out unwanted units of measure.

$$X \text{ mL/hr} = \frac{500 \text{ mL}}{25,000 \text{ units}} \times \frac{18 \text{ units}}{1 \text{ kg}} \times \frac{1 \text{ kg}}{2.2 \text{ lb}} \times \frac{174 \text{ lb}}{1 \text{ hr}}$$

**Step 4**  
Solve for X.

$$X \text{ mL/hr} = 28.472727 \text{ mL/hr}$$

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A nurse is calculating a dosage of nitroglycerin. Available is nitroglycerin 25 mg in D<sub>5</sub>W 250 mL. The nurse should set the IV pump to deliver how many mL/hr?

(Review the MAR. Round the answer to the nearest tenth.)

7.2

### Step 1

What is the unit of measurement the nurse should calculate? (Place the unit of measure being calculated on the left side of the equation.)

$$X \text{ mL/hr} =$$

### Step 2

Find the ratio in the item that contains the same unit as the unit being calculated. (Place the ratio on the right side of the equation, ensuring that the unit in the numerator matches the unit being calculated.)

$$X \text{ mL/hr} = \frac{250 \text{ mL}}{25 \text{ mg}}$$

### Step 3

Place any remaining ratios that are relevant to the item on the right side of the equation along with any needed conversion factors to cancel out unwanted units of measure.

$$X \text{ mL/hr} = \frac{250 \text{ mL}}{25 \text{ mg}} \times \frac{1 \text{ mg}}{1,000 \text{ mcg}} \times \frac{12 \text{ mcg}}{1 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hr}}$$

### Step 4

Solve for X.

$$X \text{ mL/hr} = 7.2 \text{ mL/hr}$$



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## Case studies

A nurse is preparing to increase the dosage of nitroglycerin by 5 mcg. The nurse should set the IV pump to deliver how many mL/hr?  
(Review the MAR. Round the answer to the nearest tenth.)

✘ 1020

**Step 1**  
What is the unit of measurement the nurse should calculate? (Place the unit of measure being calculated on the left side of the equation.)  
 $X \text{ mL/hr} =$

**Step 2**  
What is the desired dose?  
 $12 \text{ mcg} + 5 \text{ mcg} = 17 \text{ mcg}$

**Step 3**  
Find the ratio in the item that contains the same unit as the unit being calculated. (Place the ratio on the right side of the equation, ensuring that the unit in the numerator matches the unit being calculated.)  
 $X \text{ mL/hr} = \frac{250 \text{ mL}}{25 \text{ mg}}$

**Step 4**  
Place any remaining ratios that are relevant to the item on the right side of the equation along with any needed conversion factors to cancel out unwanted units of measure.  
 $X \text{ mL/hr} = \frac{250 \text{ mL}}{25 \text{ mg}} \times \frac{1 \text{ mg}}{1,000 \text{ mcg}} \times \frac{17 \text{ mcg}}{1 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hr}}$

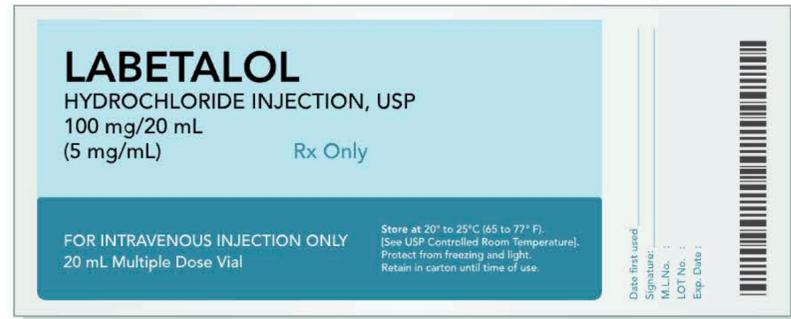
**Step 5**



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## Case studies

A nurse is calculating the dosage of labetalol. How many milliliters should the nurse administer?  
(Review the MAR and medication label. Round the answer to the nearest whole number.)



4

### Step 1

What is the unit of measurement the nurse should calculate? (Place the unit of measure being calculated on the left side of the equation.)

$$X \text{ mL} =$$

### Step 2

Find the ratio in the item that contains the same unit as the unit being calculated. (Place the ratio on the right side of the equation, ensuring that the unit in the numerator matches the unit being calculated.)

$$X \text{ mL} = \frac{1 \text{ mL}}{5 \text{ mg}}$$

### Step 3

Place any remaining ratios that are relevant to the item on the right side of the equation along with any needed conversion factors to cancel out unwanted units of measure.



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# Case studies

Close

A nurse is calculating the flow rate for D<sub>5</sub>W fluid bolus. How many mL/hr should the nurse administer?  
(Review the MAR. Round the answer to the nearest whole number.)

250

**Step 1**  
What is the unit of measurement the nurse should calculate? (Place the unit of measure being calculated on the left side of the equation.)

$$X \text{ mL/hr} =$$

**Step 2**  
Find the ratio in the item that contains the same unit as the unit being calculated. (Place the ratio on the right side of the equation, ensuring that the unit in the numerator matches the unit being calculated.)

$$X \text{ mL/hr} = \frac{500 \text{ mL}}{2 \text{ hr}}$$

**Step 3**  
Place any remaining ratios that are relevant to the item on the right side of the equation along with any needed conversion factors to cancel out unwanted units of measure.

$$X \text{ mL/hr} = \frac{500 \text{ mL}}{2 \text{ hr}}$$

**Step 4**  
Solve for X.

$$X \text{ mL/hr} = 250 \text{ mL/hr}$$

