

Essentials of Medication Administration

IV CALCULATION HELP SHEET

DIMENSIONAL ANALYSIS

PUMP

mL/hr pg 539

1) Set up: $\frac{x\text{mL}}{\text{hr}} = \frac{\text{Total mL ordered (Volume)}}{\text{Ordered Time to infuse (Hours)}}$

Order: Administer 3,000 mL of D₅W over 24 hr.

Example: $\frac{x\text{mL}}{\text{hr}} = \frac{3,000\text{ mL}}{24\text{ hr}}$
 $x = 125\text{ mL/hr}$

2) Set up: $\frac{x\text{mL}}{\text{hr}} = \frac{\text{Order mL}}{\text{min}} \times \frac{\text{Conversion min}}{\text{hr}}$

Order: Administer 50 mL of D₅W Over 30 min.

Example: $\frac{x\text{mL}}{\text{hr}} = \frac{50\text{ mL}}{30\text{ min}} \times \frac{60\text{ min}}{1\text{ hr}}$
 $x = 100\text{ mL/hr}$

GRAVITY

gtt/min (with time) pg 544

Set up: $\frac{x\text{gtt}}{\text{min}} = \frac{\text{Drop Factor gtt}}{\text{mL}} \times \frac{\text{Order mL}}{\text{min}}$

Order: Infuse 50 mL D₅W over 20 minutes with a drop Factor of 60 gtt/mL. What is the rate in gtt/min?

Example: $\frac{x\text{gtt}}{\text{min}} = \frac{60\text{ gtt}}{1\text{ mL}} \times \frac{50\text{ mL}}{20\text{ min}}$
 $x = 150\text{ gtt/min}$

GRAVITY

gtt/min (from mL/hr) pg 549

Set up: $\frac{x\text{gtt}}{\text{min}} = \frac{\text{Drop Factor gtt}}{\text{mL}} \times \frac{\text{Rate mL}}{\text{hr}} \times \frac{\text{Conversion 1 hr}}{60\text{ min}}$

Order: Administer D₅RL at 75 mL/hr with a Drop Factor of 10 gtt/mL. What is the rate in gtt/min?

Example: $\frac{x\text{gtt}}{\text{min}} = \frac{10\text{ gtt}}{1\text{ mL}} \times \frac{75\text{ mL}}{1\text{ hr}} \times \frac{1\text{ hr}}{60\text{ min}}$
 $x = 12.5$
 $x = 13\text{ gtt/min}$

TOTAL INFUSION TIME pg 570

Set up: $x\text{hr} = \frac{\text{Rate hr}}{\text{mL}} \times \frac{\text{Volume mL}}{1}$

Order: Calculate the infusion time for an IV of 1,000 mL D₅W infusing at a rate of 125 mL/hr

Example: $x\text{hr} = \frac{1\text{ hr}}{125\text{ mL}} \times \frac{1000\text{ mL}}{1}$
 $x = 8\text{ hr}$