

AI Model Comparison — Medication Dosage Calculation Cases

Gemini vs. DeepSeek vs. ChatGPT — Basic, Moderate, and Advanced Cases (B1–B30, M1–M30, A1–A30)

Basic Level Cases

Case B1

Prompt / Scenario:

Weight: 70 kg

Order: Ceftriaxone 50 mg/kg IV once daily

Gemini Response:

Weight: 70 kg

Order: Ceftriaxone 50 mg/kg IV once daily

Calculation: $70 \times 50 = 3500$ mg

Answer: Total dose = 3500 mg

DeepSeek Response:

Weight: 70 kg

Order: Ceftriaxone 50 mg/kg IV once daily

Dose in mg: $70 \times 50 = 3500$ mg

✅ Answer: 3500 mg

ChatGPT Response:

Weight: 70 kg

Order: 50 mg/kg

Step 1: Calculate dose

$70 \times 50 = 3500$ mg

Answer: 3500 mg

Case B2

Prompt / Scenario:

Weight: 18 kg

Order: Amoxicillin 25 mg/kg per dose

Gemini Response:

Weight: 18 kg

Order: Amoxicillin 25 mg/kg per dose

Calculation: $18 \times 25 = 450$ mg

Answer: Dose = 450 mg

DeepSeek Response:

Weight: 18 kg

Order: Amoxicillin 25 mg/kg per dose

Dose in mg: $18 \times 25 = 450$ mg

✅ Answer: 450 mg

ChatGPT Response:

Weight: 18 kg

Order: 25 mg/kg/dose

Step 1: Calculate dose

$18 \times 25 = 450$ mg

Answer: 450 mg

Case B3

Prompt / Scenario:

Order: Paracetamol 750 mg orally

Available: 250 mg tablets

Gemini Response:

Order: Paracetamol 750 mg orally

Available: 250 mg tablets

Calculation: $750 \div 250 = 3$

Answer: 3 tablets

DeepSeek Response:

Order: Paracetamol 750 mg orally

Available: 250 mg tablets

Tablets needed: $750 \div 250 = 3$

✅ Answer: 3 tablets

ChatGPT Response:

Order: 750 mg PO

Available: 250 mg/tablet

Step 1: Calculate tablets

$750 \div 250 = 3$

Answer: 3 tablets

Case B4

Prompt / Scenario:

Order: Ibuprofen 400 mg
Available: 200 mg tablets

Gemini Response:

Order: Ibuprofen 400 mg
Available: 200 mg tablets
Calculation: $400 \div 200 = 2$
Answer: 2 tablets

DeepSeek Response:

Order: Ibuprofen 400 mg
Available: 200 mg tablets
Tablets needed: $400 \div 200 = 2$
 Answer: 2 tablets

ChatGPT Response:

Order: 400 mg
Available: 200 mg/tablet
Step 1: Calculate tablets
 $400 \div 200 = 2$
Answer: 2 tablets

Case B5

Prompt / Scenario:

Order: 1000 mL IV fluids over 8 hours

Gemini Response:

Order: 1000 mL IV fluids over 8 hours
Calculation: $1000 \div 8 = 125$ mL/hr
Answer: 125 mL/hr

DeepSeek Response:

Order: 1000 mL IV fluids over 8 hours
Rate: $1000 \div 8 = 125$ mL/hr
 Answer: 125 mL/hr

ChatGPT Response:

Order: 1000 mL over 8 hours
Step 1: Calculate rate

$1000 \div 8 = 125 \text{ mL/hr}$

Answer: 125 mL/hr

Case B6

Prompt / Scenario:

Order: 500 mL over 4 hours

Gemini Response:

Order: 500 mL over 4 hours

Calculation: $500 \div 4 = 125 \text{ mL/hr}$

Answer: 125 mL/hr

DeepSeek Response:

Order: 500 mL over 4 hours

Rate: $500 \div 4 = 125 \text{ mL/hr}$

✅ Answer: 125 mL/hr

ChatGPT Response:

Order: 500 mL over 4 hours

Step 1: Calculate rate

$500 \div 4 = 125 \text{ mL/hr}$

Answer: 125 mL/hr

Case B7

Prompt / Scenario:

Order: 2 g Cefazolin IV

Available: 1 g vials

Gemini Response:

Order: 2 g Cefazolin IV

Available: 1 g vials

Calculation: $2 \div 1 = 2$

Answer: 2 vials

DeepSeek Response:

Order: 2 g Cefazolin IV

Available: 1 g vials

Vials needed: $2 \div 1 = 2$

✅ Answer: 2 vials

ChatGPT Response:

Order: 2 g IV

Available: 1 g/vial

Step 1: Calculate number of vials

$$2 \div 1 = 2$$

Answer: 2 vials

Case B8

Prompt / Scenario:

Order: 0.5 mg Atropine IV

Available: 1 mg/mL

Gemini Response:

Order: 0.5 mg Atropine IV

Available: 1 mg/mL

Calculation: $0.5 \div 1 = 0.5$ mL

Answer: 0.5 mL

DeepSeek Response:

Order: 0.5 mg Atropine IV

Available: 1 mg/mL

Volume: $0.5 \div 1 = 0.5$ mL

✅ Answer: 0.5 mL

ChatGPT Response:

Order: 0.5 mg IV

Available: 1 mg/mL

Step 1: Calculate volume

$$0.5 \div 1 = 0.5 \text{ mL}$$

Answer: 0.5 mL

Case B9

Prompt / Scenario:

Order: 5 mg Morphine IV

Available: 10 mg/mL

Gemini Response:

Order: 5 mg Morphine IV
Available: 10 mg/mL
Calculation: $5 \div 10 = 0.5$ mL
Answer: 0.5 mL

DeepSeek Response:

Order: 5 mg Morphine IV
Available: 10 mg/mL
Volume: $5 \div 10 = 0.5$ mL
 Answer: 0.5 mL

ChatGPT Response:

Order: 5 mg IV
Available: 10 mg/mL
Step 1: Calculate volume
 $5 \div 10 = 0.5$ mL
Answer: 0.5 mL

Case B10

Prompt / Scenario:

Order: 100 units insulin
Available: 100 units/mL

Gemini Response:

Order: 100 units insulin
Available: 100 units/mL
Calculation: $100 \div 100 = 1$ mL
Answer: 1 mL

DeepSeek Response:

Order: 100 units insulin
Available: 100 units/mL
Volume: $100 \div 100 = 1$ mL
 Answer: 1 mL

ChatGPT Response:

Order: 100 units

Available: 100 units/mL
Step 1: Calculate volume
 $100 \div 100 = 1$ mL
Answer: 1 mL

Case B11

Prompt / Scenario:

Order: 250 mg
Available: 125 mg/5 mL

Gemini Response:

Order: 250 mg
Available: 125 mg/5 mL $\rightarrow 125 \div 5 = 25$ mg/mL
Calculation: $250 \div 25 = 10$ mL
Answer: 10 mL

DeepSeek Response:

Order: 250 mg
Available: 125 mg/5 mL $\rightarrow$ concentration = 25 mg/mL
Volume: $250 \div 25 = 10$ mL
 Answer: 10 mL

ChatGPT Response:

Order: 250 mg
Available: 125 mg/5 mL
Step 1: Find concentration
 $125 \div 5 = 25$ mg/mL
Step 2: Calculate volume
 $250 \div 25 = 10$ mL
Answer: 10 mL

Case B12

Prompt / Scenario:

Order: 300 mg
Available: 100 mg tablets

Gemini Response:

Order: 300 mg

Available: 100 mg tablets
Calculation: $300 \div 100 = 3$
Answer: 3 tablets

DeepSeek Response:

Order: 300 mg
Available: 100 mg tablets
Tablets: $300 \div 100 = 3$
 Answer: 3 tablets

ChatGPT Response:

Order: 300 mg
Available: 100 mg/tablet
Step 1: Calculate tablets
 $300 \div 100 = 3$
Answer: 3 tablets

Case B13

Prompt / Scenario:

Order: 1.5 L IV over 12 hours

Gemini Response:

Order: 1.5 L IV over 12 hours (1.5 L = 1500 mL)
Calculation: $1500 \div 12 = 125$ mL/hr
Answer: 125 mL/hr

DeepSeek Response:

Order: 1.5 L IV over 12 hours (1.5 L = 1500 mL)
Rate: $1500 \div 12 = 125$ mL/hr
 Answer: 125 mL/hr

ChatGPT Response:

Order: 1.5 L over 12 hours
Step 1: Convert liters to mL
 $1.5 \times 1000 = 1500$ mL
Step 2: Calculate rate
 $1500 \div 12 = 125$ mL/hr
Answer: 125 mL/hr

Case B14

Prompt / Scenario:

Order: 80 mg

Available: 40 mg tablets

Gemini Response:

Order: 80 mg

Available: 40 mg tablets

Calculation: $80 \div 40 = 2$

Answer: 2 tablets

DeepSeek Response:

Order: 80 mg

Available: 40 mg tablets

Tablets: $80 \div 40 = 2$

✅ Answer: 2 tablets

ChatGPT Response:

Order: 80 mg

Available: 40 mg/tablet

Step 1: Calculate tablets

$80 \div 40 = 2$

Answer: 2 tablets

Case B15

Prompt / Scenario:

Order: 10 mg IV

Available: 2 mg/mL

Gemini Response:

Order: 10 mg IV

Available: 2 mg/mL

Calculation: $10 \div 2 = 5$ mL

Answer: 5 mL

DeepSeek Response:

Order: 10 mg IV

Available: 2 mg/mL

Volume: $10 \div 2 = 5$ mL

✅ Answer: 5 mL

ChatGPT Response:

Order: 10 mg IV

Available: 2 mg/mL

Step 1: Calculate volume

$10 \div 2 = 5$ mL

Answer: 5 mL

Case B16

Prompt / Scenario:

Order: 250 mcg

Available: 125 mcg tablets

Gemini Response:

Order: 250 mcg

Available: 125 mcg tablets

Calculation: $250 \div 125 = 2$

Answer: 2 tablets

DeepSeek Response:

Order: 250 mcg

Available: 125 mcg tablets

Tablets: $250 \div 125 = 2$

✅ Answer: 2 tablets

ChatGPT Response:

Order: 250 mcg

Available: 125 mcg/tablet

Step 1: Calculate tablets

$250 \div 125 = 2$

Answer: 2 tablets

Case B17

Prompt / Scenario:

Order: 600 mg

Available: 200 mg tablets

Gemini Response:

Order: 600 mg
Available: 200 mg tablets
Calculation: $600 \div 200 = 3$
Answer: 3 tablets

DeepSeek Response:

Order: 600 mg
Available: 200 mg tablets
Tablets: $600 \div 200 = 3$
 Answer: 3 tablets

ChatGPT Response:

Order: 600 mg
Available: 200 mg/tablet
Step 1: Calculate tablets
 $600 \div 200 = 3$
Answer: 3 tablets

Case B18

Prompt / Scenario:

Order: 1000 mL over 10 hours

Gemini Response:

Order: 1000 mL over 10 hours
Calculation: $1000 \div 10 = 100 \text{ mL/hr}$
Answer: 100 mL/hr

DeepSeek Response:

Order: 1000 mL over 10 hours
Rate: $1000 \div 10 = 100 \text{ mL/hr}$
 Answer: 100 mL/hr

ChatGPT Response:

Order: 1000 mL over 10 hours
Step 1: Calculate rate
 $1000 \div 10 = 100 \text{ mL/hr}$
Answer: 100 mL/hr

Case B19

Prompt / Scenario:

Order: 50 mg

Available: 25 mg tablets

Gemini Response:

Order: 50 mg

Available: 25 mg tablets

Calculation: $50 \div 25 = 2$

Answer: 2 tablets

DeepSeek Response:

Order: 50 mg

Available: 25 mg tablets

Tablets: $50 \div 25 = 2$

 Answer: 2 tablets

ChatGPT Response:

Order: 50 mg

Available: 25 mg/tablet

Step 1: Calculate tablets

$50 \div 25 = 2$

Answer: 2 tablets

Case B20

Prompt / Scenario:

Order: 0.25 mg Digoxin

Available: 0.125 mg tablets

Gemini Response:

Order: 0.25 mg Digoxin

Available: 0.125 mg tablets

Calculation: $0.25 \div 0.125 = 2$

Answer: 2 tablets

DeepSeek Response:

Order: 0.25 mg Digoxin

Available: 0.125 mg tablets

Tablets: $0.25 \div 0.125 = 2$

✅ Answer: 2 tablets

ChatGPT Response:

Order: 0.25 mg

Available: 0.125 mg/tablet

Step 1: Calculate tablets

$0.25 \div 0.125 = 2$

Answer: 2 tablets

Case B21

Prompt / Scenario:

Order: Methylprednisolone 160 mg IM every 12 hours

Available: 125 mg/2 mL

Gemini Response:

Methylprednisolone Scenario

Dose required: 160 mg

Concentration available: 125 mg in 2 mL

Volume to withdraw: $(160 \div 125) \times 2 = 2.56$ mL

DeepSeek Response:

Methylprednisolone

Order: 160 mg IM every 12 hours

Available: 125 mg/2 mL → concentration = 62.5 mg/mL

Volume: $160 \div 62.5 = 2.56$ mL

✅ Answer: 2.56 mL

ChatGPT Response:

Order: 160 mg IM

Available: 125 mg/2 mL

Step 1: Find concentration

$125 \div 2 = 62.5$ mg/mL

Step 2: Calculate volume

$160 \div 62.5 = 2.56$ mL

Answer: 2.56 mL

Case B22

Prompt / Scenario:

Order: Lorazepam (Ativan) 1 mg PO

Available: 0.5 mg tablets

Gemini Response:

Lorazepam (Ativan) Scenario

Dose required: 1 mg

Concentration available: 0.5 mg per tablet

Number of tablets: $1 \div 0.5 = 2$ tablets

DeepSeek Response:

Lorazepam (Ativan)

Order: 1 mg PO

Available: 0.5 mg tablets

Tablets: $1 \div 0.5 = 2$

✅ Answer: 2 tablets

ChatGPT Response:

Order: 1 mg PO

Available: 0.5 mg/tablet

Step 1: Calculate tablets

$1 \div 0.5 = 2$

Answer: 2 tablets

Case B23

Prompt / Scenario:

Order: Acetaminophen liquid 650 mg qid

Available: 160 mg/5 mL

Gemini Response:

Acetaminophen (Tylenol) Scenario

Dose required: 650 mg

Concentration available: 160 mg in 5 mL

Volume per dose: $(650 \div 160) \times 5 = 20.31$ mL (approx. 20.3 mL)

DeepSeek Response:

Acetaminophen liquid

Order: 650 mg qid

Available: 160 mg/5 mL → concentration = 32 mg/mL

Volume per dose: $650 \div 32 = 20.3125$ mL

✅ Answer: 20.3 mL

ChatGPT Response:

Order: 650 mg

Available: 160 mg/5 mL

Step 1: Find concentration

$160 \div 5 = 32$ mg/mL

Step 2: Calculate volume

$650 \div 32 = 20.3125$ mL

Answer: 20.3 mL per dose

Case B24

Prompt / Scenario:

Order: Codeine 45 mg IM

Available: 60 mg/2 mL

Gemini Response:

Codeine Scenario

Dose required: 45 mg

Concentration available: 60 mg in 2 mL

Volume to give: $(45 \div 60) \times 2 = 1.5$ mL

DeepSeek Response:

Codeine

Order: 45 mg IM

Available: 60 mg/2 mL → concentration = 30 mg/mL

Volume: $45 \div 30 = 1.5$ mL

✅ Answer: 1.5 mL

ChatGPT Response:

Order: 45 mg IM

Available: 60 mg/2 mL

Step 1: Find concentration

$60 \div 2 = 30$ mg/mL

Step 2: Calculate volume

$45 \div 30 = 1.5$ mL

Answer: 1.5 mL

Case B25

Prompt / Scenario:

Order: Digoxin 0.25 mg PO

Available: 0.125 mg tablets

Gemini Response:

Digoxin Scenario

Dose required: 0.25 mg

Concentration available: 0.125 mg per tablet

Number of tablets: $0.25 \div 0.125 = 2$ tablets

DeepSeek Response:

Digoxin

Order: 0.25 mg PO

Available: 0.125 mg tablets

Tablets: $0.25 \div 0.125 = 2$

✅ Answer: 2 tablets

ChatGPT Response:

Order: 0.25 mg PO

Available: 0.125 mg/tablet

Step 1: Calculate tablets

$0.25 \div 0.125 = 2$

Answer: 2 tablets

Case B26

Prompt / Scenario:

Weight: 150 lb

Order: Hydromorphone (Dilaudid) 0.015 mg/kg

Available: 4 mg/mL

Gemini Response:

Hydromorphone (Dilaudid) Scenario

Patient weight: $150 \text{ lbs} \div 2.2 = 68.18 \text{ kg}$

Dose required: $0.015 \text{ mg} \times 68.18 \text{ kg} = 1.0227 \text{ mg}$

Concentration available: 4 mg in 1 mL

Volume to administer: $1.0227 \div 4 = 0.26$ mL

DeepSeek Response:

Hydromorphone (Dilaudid)

Weight: 150 lbs $\rightarrow 150 \div 2.2 \approx 68.18$ kg

Order: 0.015 mg/kg $\rightarrow 68.18 \times 0.015 = 1.0227$ mg

Available: 4 mg/mL

Volume: $1.0227 \div 4 \approx 0.2557$ mL

✅ Answer: 0.26 mL

ChatGPT Response:

Weight: 150 lb

Step 1: Convert lb to kg

$150 \div 2.2 = 68.18$ kg

Order: 0.015 mg/kg

Step 2: Calculate dose

$68.18 \times 0.015 = 1.0227$ mg

Available: 4 mg/mL

Step 3: Calculate volume

$1.0227 \div 4 = 0.2557$ mL

Answer: 0.26 mL

Case B27

Prompt / Scenario:

Order: Methadone 40 mg SC

Available: 30 mg/mL

Gemini Response:

Methadone SC Scenario

Dose required: 40 mg

Concentration available: 30 mg in 1 mL

Volume to withdraw: $40 \div 30 = 1.33$ mL

DeepSeek Response:

Methadone

Order: 40 mg SC

Available: 30 mg/mL

Volume: $40 \div 30 = 1.333$ mL

✅ Answer: 1.33 mL

ChatGPT Response:

Order: 40 mg SC
Available: 30 mg/mL
Step 1: Calculate volume
 $40 \div 30 = 1.333 \text{ mL}$
Answer: 1.33 mL

Case B28

Prompt / Scenario:

Order: Methadone oral solution 15 mg/day PO
Available: 10 mg/5 mL

Gemini Response:

Methadone PO Scenario
Dose required: 15 mg
Concentration available: 10 mg in 5 mL
Volume to instruct patient to take: $(15 \div 10) \times 5 = 7.5 \text{ mL}$

DeepSeek Response:

Methadone oral solution
Order: 15 mg/day PO
Available: 10 mg in 5 mL → concentration = 2 mg/mL
Volume: $15 \div 2 = 7.5 \text{ mL}$
✅ Answer: 7.5 mL

ChatGPT Response:

Order: 15 mg/day PO
Available: 10 mg/5 mL
Step 1: Find concentration
 $10 \div 5 = 2 \text{ mg/mL}$
Step 2: Calculate volume
 $15 \div 2 = 7.5 \text{ mL}$
Answer: 7.5 mL

Case B29

Prompt / Scenario:

Order: Nystatin 400,000 units PO every 4 hours

Available: 100,000 units/5 mL

Gemini Response:

Nystatin Scenario

Dose required: 400,000 units

Concentration available: 100,000 units in 5 mL

Volume required: $(400,000 \div 100,000) \times 5 = 20$ mL

Household conversion: $20 \text{ mL} \div 5 \text{ mL/tsp} = 4$ teaspoons

DeepSeek Response:

Nystatin

Order: 400,000 units PO every 4 hours

Available: 100,000 units/5 mL $\rightarrow$ concentration = 20,000 units/mL

Volume: $400,000 \div 20,000 = 20$ mL

Household measure: 20 mL $\approx$ 4 teaspoons

 Answer: 20 mL

ChatGPT Response:

Order: 400,000 units PO

Available: 100,000 units/5 mL

Step 1: Find concentration

$100000 \div 5 = 20000$ units/mL

Step 2: Calculate volume

$400000 \div 20000 = 20$ mL

Answer: 20 mL

Case B30

Prompt / Scenario:

Order: Heparin 12,000 units SC

Available: 5000 units/mL

Gemini Response:

Heparin Scenario

Dose required: 12,000 units

Concentration available: 5,000 units in 1 mL

Volume to inject: $12,000 \div 5,000 = 2.4$ mL

DeepSeek Response:

Heparin

Order: 12,000 units SC

Available: 5000 units/mL

Volume: $12,000 \div 5000 = 2.4$ mL

 Answer: 2.4 mL

ChatGPT Response:

Order: 12,000 units SC

Available: 5,000 units/mL

Step 1: Calculate volume

$12000 \div 5000 = 2.4$ mL

Answer: 2.4 mL

Moderate Level Cases

Case M1

Prompt / Scenario:

Weight: 70 kg

Order: Ceftriaxone 50 mg/kg IV once daily

Available: 1 g vial reconstituted to 10 mL

Gemini Response:

Ceftriaxone Scenario

Dose required: $50 \text{ mg} \times 70 \text{ kg} = 3500 \text{ mg}$

Concentration available: 1000 mg in 10 mL $\rightarrow$ 100 mg/mL

Volume required: $3500 \div 100 = 35 \text{ mL}$

DeepSeek Response:

Weight: 70 kg

Order: Ceftriaxone 50 mg/kg IV once daily

Dose: $70 \times 50 = 3500 \text{ mg} = 3.5 \text{ g}$

Available: 1 g vial reconstituted to 10 mL $\rightarrow$ concentration = 100 mg/mL

Volume required: $3500 \div 100 = 35 \text{ mL}$

✅ Answer: 3500 mg, 35 mL

ChatGPT Response:

Weight: 70 kg

Order: Ceftriaxone 50 mg/kg IV once daily

Dose: $70 \times 50 = 3500 \text{ mg}$

Available: 1 g/10 mL $\rightarrow$ 100 mg/mL

Volume: $3500 \div 100 = 35 \text{ mL}$

Answer: 3500 mg, 35 mL

Case M2

Prompt / Scenario:

Weight: 100 kg

Order: Dopamine 5 mcg/kg/min

Available: 400 mg in 50 mL

Gemini Response:

Dopamine Scenario

Dose required: $5 \text{ mcg} \times 100 \text{ kg} \times 60 \text{ min} = 30000 \text{ mcg/hr}$ (30 mg/hr)

Concentration available: 400 mg in 50 mL → 8 mg/mL

Infusion rate: $30 \div 8 = 3.75$ mL/hr

DeepSeek Response:

Weight: 100 kg

Order: Dopamine 5 mcg/kg/min

Dose: $100 \times 5 = 500$ mcg/min

Available: 400 mg in 50 mL = 400,000 mcg in 50 mL → concentration = 8000 mcg/mL

Rate: $(500 \div 8000) \times 60 = 3.75$ mL/hr

✅ Answer: 3.75 mL/hr

ChatGPT Response:

Weight: 100 kg

Order: Dopamine 5 mcg/kg/min

Dose: $100 \times 5 = 500$ mcg/min

Convert: 500 mcg = 0.5 mg/min

Per hour: $0.5 \times 60 = 30$ mg/hr

Available: 400 mg/50 mL → 8 mg/mL

Rate: $30 \div 8 = 3.75$ mL/hr

Answer: 3.75 mL/hr

Case M3

Prompt / Scenario:

Weight: 80 kg

Order: Heparin 18 units/kg/hr

Available: 25,000 units in 250 mL

Gemini Response:

Heparin Scenario

Dose required: $18 \text{ units} \times 80 \text{ kg} = 1440$ units/hr

Concentration available: 25000 units in 250 mL → 100 units/mL

Infusion rate: $1440 \div 100 = 14.4$ mL/hr

DeepSeek Response:

Weight: 80 kg

Order: Heparin 18 units/kg/hr

Dose: $80 \times 18 = 1440$ units/hr

Available: 25,000 units in 250 mL → concentration = 100 units/mL

Rate: $1440 \div 100 = 14.4$ mL/hr

✓ Answer: 14.4 mL/hr

ChatGPT Response:

Weight: 80 kg
Order: Heparin 18 units/kg/hr
Dose: $80 \times 18 = 1440$ units/hr
Available: 25,000 units/250 mL $\rightarrow$ 100 units/mL
Rate: $1440 \div 100 = 14.4$ mL/hr
Answer: 14.4 mL/hr

Case M4

Prompt / Scenario:

Weight: 18 kg
Order: Amoxicillin 25 mg/kg/dose
Available: 250 mg/5 mL

Gemini Response:

Amoxicillin Scenario
Dose required: $25 \text{ mg} \times 18 \text{ kg} = 450 \text{ mg}$
Concentration available: 250 mg in 5 mL $\rightarrow$ 50 mg/mL
Volume per dose: $450 \div 50 = 9 \text{ mL}$

DeepSeek Response:

Weight: 18 kg
Order: Amoxicillin 25 mg/kg/dose
Dose: $18 \times 25 = 450 \text{ mg}$
Available: 250 mg/5 mL $\rightarrow$ concentration = 50 mg/mL
Volume per dose: $450 \div 50 = 9 \text{ mL}$
✓ Answer: 9 mL

ChatGPT Response:

Weight: 18 kg
Order: Amoxicillin 25 mg/kg/dose
Dose: $18 \times 25 = 450 \text{ mg}$
Available: 250 mg/5 mL $\rightarrow$ 50 mg/mL
Volume: $450 \div 50 = 9 \text{ mL}$
Answer: 450 mg, 9 mL

Case M5

Prompt / Scenario:

Weight: 60 kg

Order: Enoxaparin 1 mg/kg SC

Available: 100 mg/mL

Gemini Response:

Enoxaparin Scenario

Dose required: $1 \text{ mg} \times 60 \text{ kg} = 60 \text{ mg}$

Concentration available: 100 mg/mL

Volume required: $60 \div 100 = 0.6 \text{ mL}$

DeepSeek Response:

Weight: 60 kg

Order: Enoxaparin 1 mg/kg SC

Dose: $60 \times 1 = 60 \text{ mg}$

Available: 100 mg/mL

Volume: $60 \div 100 = 0.6 \text{ mL}$

✅ Answer: 0.6 mL

ChatGPT Response:

Weight: 60 kg

Order: Enoxaparin 1 mg/kg SC

Dose: $60 \times 1 = 60 \text{ mg}$

Available: 100 mg/mL

Volume: $60 \div 100 = 0.6 \text{ mL}$

Answer: 60 mg, 0.6 mL

Case M6

Prompt / Scenario:

Weight: 72 kg

Order: Vancomycin 15 mg/kg IV

Available: 500 mg vial reconstituted to 10 mL

Gemini Response:

Vancomycin Scenario

Dose required: $15 \text{ mg} \times 72 \text{ kg} = 1080 \text{ mg}$

Concentration available: 500 mg in 10 mL $\rightarrow 50 \text{ mg/mL}$

Volume required: $1080 \div 50 = 21.6 \text{ mL}$

DeepSeek Response:

Weight: 72 kg

Order: Vancomycin 15 mg/kg IV

Dose: $72 \times 15 = 1080$ mg

Available: 500 mg vial reconstituted to 10 mL $\rightarrow$ concentration = 50 mg/mL

Volume: $1080 \div 50 = 21.6$ mL

✅ Answer: 21.6 mL

ChatGPT Response:

Weight: 72 kg

Order: Vancomycin 15 mg/kg IV

Dose: $72 \times 15 = 1080$ mg

Available: 500 mg/10 mL $\rightarrow$ 50 mg/mL

Volume: $1080 \div 50 = 21.6$ mL

Answer: 1080 mg, 21.6 mL

Case M7

Prompt / Scenario:

Weight: 90 kg

Order: Magnesium sulfate 40 mg/kg IV

Available: 1 g in 10 mL

Gemini Response:

Magnesium Sulfate Scenario

Dose required: $40 \text{ mg} \times 90 \text{ kg} = 3600$ mg

Concentration available: 1000 mg in 10 mL $\rightarrow$ 100 mg/mL

Volume required: $3600 \div 100 = 36$ mL

DeepSeek Response:

Weight: 90 kg

Order: Magnesium sulfate 40 mg/kg IV

Dose: $90 \times 40 = 3600$ mg = 3.6 g

Available: 1 g in 10 mL $\rightarrow$ concentration = 100 mg/mL

Volume: $3600 \div 100 = 36$ mL

✅ Answer: 36 mL

ChatGPT Response:

Weight: 90 kg

Order: Magnesium sulfate 40 mg/kg IV

Dose: $90 \times 40 = 3600$ mg
Available: 1 g/10 mL $\rightarrow$ 100 mg/mL
Volume: $3600 \div 100 = 36$ mL
Answer: 3600 mg, 36 mL

Case M8

Prompt / Scenario:

Weight: 65 kg
Order: Dobutamine 7 mcg/kg/min
Available: 250 mg in 250 mL

Gemini Response:

Dobutamine Scenario
Dose required: $7 \text{ mcg} \times 65 \text{ kg} \times 60 \text{ min} = 27300 \text{ mcg/hr}$ (27.3 mg/hr)
Concentration available: 250 mg in 250 mL $\rightarrow$ 1 mg/mL
Infusion rate: $27.3 \div 1 = 27.3$ mL/hr

DeepSeek Response:

Weight: 65 kg
Order: Dobutamine 7 mcg/kg/min
Dose: $65 \times 7 = 455$ mcg/min
Available: 250 mg in 250 mL $\rightarrow$ concentration = 1000 mcg/mL
Rate: $(455 \div 1000) \times 60 = 27.3$ mL/hr
 Answer: 27.3 mL/hr

ChatGPT Response:

Weight: 65 kg
Order: Dobutamine 7 mcg/kg/min
Dose: $65 \times 7 = 455$ mcg/min
Convert: 455 mcg = 0.455 mg/min
Per hour: $0.455 \times 60 = 27.3$ mg/hr
Available: 250 mg/250 mL $\rightarrow$ 1 mg/mL
Rate: $27.3 \div 1 = 27.3$ mL/hr
Answer: 27.3 mL/hr

Case M9

Prompt / Scenario:

Weight: 15 kg

Order: Cefotaxime 100 mg/kg/day divided twice daily
Available: 1 g vial reconstituted to 10 mL

Gemini Response:

Cefotaxime Scenario

Daily dose required: $100 \text{ mg} \times 15 \text{ kg} = 1500 \text{ mg/day}$

Dose per administration (twice daily): $1500 \div 2 = 750 \text{ mg}$

Concentration available: 1000 mg in 10 mL $\rightarrow 100 \text{ mg/mL}$

Volume per dose: $750 \div 100 = 7.5 \text{ mL}$

DeepSeek Response:

Weight: 15 kg

Order: Cefotaxime 100 mg/kg/day divided twice daily

Daily dose: $15 \times 100 = 1500 \text{ mg/day}$; per dose = 750 mg

Available: 1 g vial reconstituted to 10 mL $\rightarrow$ concentration = 100 mg/mL

Volume per dose: $750 \div 100 = 7.5 \text{ mL}$

 Answer: 7.5 mL

ChatGPT Response:

Weight: 15 kg

Order: Cefotaxime 100 mg/kg/day divided twice daily

Daily dose: $15 \times 100 = 1500 \text{ mg/day}$

Per dose: $1500 \div 2 = 750 \text{ mg}$

Available: 1 g/10 mL $\rightarrow 100 \text{ mg/mL}$

Volume: $750 \div 100 = 7.5 \text{ mL}$

Answer: 750 mg, 7.5 mL/dose

Case M10

Prompt / Scenario:

Weight: 75 kg

Order: Phenytoin 15 mg/kg loading dose IV

Available: 50 mg/mL

Gemini Response:

Phenytoin Scenario

Dose required: $15 \text{ mg} \times 75 \text{ kg} = 1125 \text{ mg}$

Concentration available: 50 mg/mL

Volume required: $1125 \div 50 = 22.5 \text{ mL}$

DeepSeek Response:

Weight: 75 kg
Order: Phenytoin 15 mg/kg loading dose IV
Dose: $75 \times 15 = 1125$ mg
Available: 50 mg/mL
Volume: $1125 \div 50 = 22.5$ mL
✅ Answer: 22.5 mL

ChatGPT Response:

Weight: 75 kg
Order: Phenytoin 15 mg/kg loading dose IV
Dose: $75 \times 15 = 1125$ mg
Available: 50 mg/mL
Volume: $1125 \div 50 = 22.5$ mL
Answer: 1125 mg, 22.5 mL

Case M11

Prompt / Scenario:

Weight: 70 kg
Order: Gentamicin 5 mg/kg IV once daily
Available: 80 mg/2 mL

Gemini Response:

Gentamicin Scenario
Dose required: $5 \text{ mg} \times 70 \text{ kg} = 350 \text{ mg}$
Concentration available: 80 mg in 2 mL $\rightarrow 40 \text{ mg/mL}$
Volume required: $350 \div 40 = 8.75 \text{ mL}$

DeepSeek Response:

Weight: 70 kg
Order: Gentamicin 5 mg/kg IV once daily
Dose: $70 \times 5 = 350 \text{ mg}$
Available: 80 mg/2 mL $\rightarrow$ concentration = 40 mg/mL
Volume: $350 \div 40 = 8.75 \text{ mL}$
✅ Answer: 8.75 mL

ChatGPT Response:

Weight: 70 kg
Order: Gentamicin 5 mg/kg IV once daily
Dose: $70 \times 5 = 350 \text{ mg}$

Available: 80 mg/2 mL → 40 mg/mL

Volume: $350 \div 40 = 8.75$ mL

Answer: 350 mg, 8.75 mL

Case M12

Prompt / Scenario:

Weight: 85 kg

Order: Norepinephrine 0.05 mcg/kg/min

Available: 4 mg in 250 mL

Gemini Response:

Norepinephrine Scenario

Dose required: $0.05 \text{ mcg} \times 85 \text{ kg} \times 60 \text{ min} = 255 \text{ mcg/hr}$ (0.255 mg/hr)

Concentration available: 4 mg in 250 mL → 0.016 mg/mL

Infusion rate: $0.255 \div 0.016 = 15.94 \text{ mL/hr}$

DeepSeek Response:

Weight: 85 kg

Order: Norepinephrine 0.05 mcg/kg/min

Dose: $85 \times 0.05 = 4.25 \text{ mcg/min}$

Available: 4 mg in 250 mL = 4000 mcg in 250 mL → concentration = 16 mcg/mL

Rate: $(4.25 \div 16) \times 60 = 15.9375 \text{ mL/hr}$

✅ Answer: 15.94 mL/hr

ChatGPT Response:

Weight: 85 kg

Order: Norepinephrine 0.05 mcg/kg/min

Dose: $85 \times 0.05 = 4.25 \text{ mcg/min}$

Convert: $4.25 \text{ mcg} = 0.00425 \text{ mg/min}$

Per hour: $0.00425 \times 60 = 0.255 \text{ mg/hr}$

Available: 4 mg/250 mL → 0.016 mg/mL

Rate: $0.255 \div 0.016 = 15.94 \text{ mL/hr}$

Answer: 15.9 mL/hr

Case M13

Prompt / Scenario:

Weight: 20 kg

Order: Ceftriaxone 75 mg/kg/day divided twice daily

Available: 1 g reconstituted to 10 mL

Gemini Response:

Ceftriaxone Scenario

Daily dose required: $75 \text{ mg} \times 20 \text{ kg} = 1500 \text{ mg/day}$

Dose per administration (twice daily): $1500 \div 2 = 750 \text{ mg}$

Concentration available: 1000 mg in 10 mL $\rightarrow 100 \text{ mg/mL}$

Volume per dose: $750 \div 100 = 7.5 \text{ mL}$

DeepSeek Response:

Weight: 20 kg

Order: Ceftriaxone 75 mg/kg/day divided twice daily

Daily dose: $20 \times 75 = 1500 \text{ mg/day}$; per dose = 750 mg

Available: 1 g reconstituted to 10 mL $\rightarrow$ concentration = 100 mg/mL

Volume per dose: $750 \div 100 = 7.5 \text{ mL}$

✅ Answer: 7.5 mL

ChatGPT Response:

Weight: 20 kg

Order: Ceftriaxone 75 mg/kg/day divided twice daily

Daily dose: $20 \times 75 = 1500 \text{ mg/day}$

Per dose: $1500 \div 2 = 750 \text{ mg}$

Available: 1 g/10 mL $\rightarrow 100 \text{ mg/mL}$

Volume: $750 \div 100 = 7.5 \text{ mL}$

Answer: 750 mg, 7.5 mL/dose

Case M14

Prompt / Scenario:

Weight: 50 kg

Order: Insulin infusion at 0.1 units/kg/hr

Available: 100 units in 100 mL

Gemini Response:

Insulin Scenario

Dose required: $0.1 \text{ units} \times 50 \text{ kg} = 5 \text{ units/hr}$

Concentration available: 100 units in 100 mL $\rightarrow 1 \text{ unit/mL}$

Infusion rate: $5 \div 1 = 5 \text{ mL/hr}$

DeepSeek Response:

Weight: 50 kg

Order: Insulin infusion at 0.1 units/kg/hr

Dose: $50 \times 0.1 = 5$ units/hr

Available: 100 units in 100 mL $\rightarrow$ concentration = 1 unit/mL

Rate: $5 \div 1 = 5$ mL/hr

✅ Answer: 5 mL/hr

ChatGPT Response:

Weight: 50 kg

Order: Insulin 0.1 units/kg/hr

Dose: $50 \times 0.1 = 5$ units/hr

Available: 100 units/100 mL $\rightarrow$ 1 unit/mL

Rate: $5 \div 1 = 5$ mL/hr

Answer: 5 mL/hr

Case M15

Prompt / Scenario:

Weight: 95 kg

Order: Morphine 0.1 mg/kg IV bolus

Available: 10 mg/mL

Gemini Response:

Morphine Scenario

Dose required: $0.1 \text{ mg} \times 95 \text{ kg} = 9.5 \text{ mg}$

Concentration available: 10 mg/mL

Volume required: $9.5 \div 10 = 0.95 \text{ mL}$

DeepSeek Response:

Weight: 95 kg

Order: Morphine 0.1 mg/kg IV bolus

Dose: $95 \times 0.1 = 9.5 \text{ mg}$

Available: 10 mg/mL

Volume: $9.5 \div 10 = 0.95 \text{ mL}$

✅ Answer: 0.95 mL

ChatGPT Response:

Weight: 95 kg

Order: Morphine 0.1 mg/kg IV bolus

Dose: $95 \times 0.1 = 9.5 \text{ mg}$

Available: 10 mg/mL
Volume: $9.5 \div 10 = 0.95$ mL
Answer: 9.5 mg, 0.95 mL

Case M16

Prompt / Scenario:

Weight: 68 kg
Order: Furosemide 1 mg/kg IV
Available: 20 mg/2 mL

Gemini Response:

Furosemide Scenario
Dose required: $1 \text{ mg} \times 68 \text{ kg} = 68 \text{ mg}$
Concentration available: 20 mg in 2 mL $\rightarrow 10 \text{ mg/mL}$
Volume required: $68 \div 10 = 6.8$ mL

DeepSeek Response:

Weight: 68 kg
Order: Furosemide 1 mg/kg IV
Dose: $68 \times 1 = 68 \text{ mg}$
Available: 20 mg/2 mL $\rightarrow$ concentration = 10 mg/mL
Volume: $68 \div 10 = 6.8$ mL
 Answer: 6.8 mL

ChatGPT Response:

Weight: 68 kg
Order: Furosemide 1 mg/kg IV
Dose: $68 \times 1 = 68 \text{ mg}$
Available: 20 mg/2 mL $\rightarrow 10 \text{ mg/mL}$
Volume: $68 \div 10 = 6.8$ mL
Answer: 68 mg, 6.8 mL

Case M17

Prompt / Scenario:

Weight: 30 kg
Order: Epinephrine 0.01 mg/kg IM
Available: 1 mg/mL

Gemini Response:

Epinephrine Scenario

Dose required: $0.01 \text{ mg} \times 30 \text{ kg} = 0.3 \text{ mg}$

Concentration available: 1 mg/mL

Volume required: $0.3 \div 1 = 0.3 \text{ mL}$

DeepSeek Response:

Weight: 30 kg

Order: Epinephrine 0.01 mg/kg IM

Dose: $30 \times 0.01 = 0.3 \text{ mg}$

Available: 1 mg/mL

Volume: $0.3 \div 1 = 0.3 \text{ mL}$

 Answer: 0.3 mL

ChatGPT Response:

Weight: 30 kg

Order: Epinephrine 0.01 mg/kg IM

Dose: $30 \times 0.01 = 0.3 \text{ mg}$

Available: 1 mg/mL

Volume: $0.3 \div 1 = 0.3 \text{ mL}$

Answer: 0.3 mg , 0.3 mL

Case M18

Prompt / Scenario:

Weight: 110 kg

Order: Heparin 15 units/kg/hr

Available: $25,000 \text{ units in } 500 \text{ mL}$

Gemini Response:

Heparin Scenario

Dose required: $15 \text{ units} \times 110 \text{ kg} = 1650 \text{ units/hr}$

Concentration available: $25000 \text{ units in } 500 \text{ mL} \rightarrow 50 \text{ units/mL}$

Infusion rate: $1650 \div 50 = 33 \text{ mL/hr}$

DeepSeek Response:

Weight: 110 kg

Order: Heparin 15 units/kg/hr

Dose: $110 \times 15 = 1650 \text{ units/hr}$

Available: $25,000 \text{ units in } 500 \text{ mL} \rightarrow \text{concentration} = 50 \text{ units/mL}$

Rate: $1650 \div 50 = 33 \text{ mL/hr}$

✓ Answer: 33 mL/hr

ChatGPT Response:

Weight: 110 kg
Order: Heparin 15 units/kg/hr
Dose: $110 \times 15 = 1650$ units/hr
Available: 25,000 units/500 mL $\rightarrow$ 50 units/mL
Rate: $1650 \div 50 = 33$ mL/hr
Answer: 33 mL/hr

Case M19

Prompt / Scenario:

Weight: 55 kg
Order: Ketamine 2 mg/kg IV
Available: 50 mg/mL

Gemini Response:

Ketamine Scenario
Dose required: $2 \text{ mg} \times 55 \text{ kg} = 110 \text{ mg}$
Concentration available: 50 mg/mL
Volume required: $110 \div 50 = 2.2 \text{ mL}$

DeepSeek Response:

Weight: 55 kg
Order: Ketamine 2 mg/kg IV
Dose: $55 \times 2 = 110 \text{ mg}$
Available: 50 mg/mL
Volume: $110 \div 50 = 2.2 \text{ mL}$
✓ Answer: 2.2 mL

ChatGPT Response:

Weight: 55 kg
Order: Ketamine 2 mg/kg IV
Dose: $55 \times 2 = 110 \text{ mg}$
Available: 50 mg/mL
Volume: $110 \div 50 = 2.2 \text{ mL}$
Answer: 110 mg, 2.2 mL

Case M20

Prompt / Scenario:

Weight: 40 kg

Order: Cefazolin 30 mg/kg IV

Available: 1 g reconstituted to 10 mL

Gemini Response:

Cefazolin Scenario

Dose required: $30 \text{ mg} \times 40 \text{ kg} = 1200 \text{ mg}$

Concentration available: 1000 mg in 10 mL $\rightarrow$ 100 mg/mL

Volume required: $1200 \div 100 = 12 \text{ mL}$

DeepSeek Response:

Weight: 40 kg

Order: Cefazolin 30 mg/kg IV

Dose: $40 \times 30 = 1200 \text{ mg}$

Available: 1 g reconstituted to 10 mL $\rightarrow$ concentration = 100 mg/mL

Volume: $1200 \div 100 = 12 \text{ mL}$

✅ Answer: 12 mL

ChatGPT Response:

Weight: 40 kg

Order: Cefazolin 30 mg/kg IV

Dose: $40 \times 30 = 1200 \text{ mg}$

Available: 1 g/10 mL $\rightarrow$ 100 mg/mL

Volume: $1200 \div 100 = 12 \text{ mL}$

Answer: 1200 mg, 12 mL

Case M21

Prompt / Scenario:

Weight: 74 kg

Order: Gentamicin 5 mg/kg IV once daily

Available: 80 mg/2 mL

Gemini Response:

Gentamicin Scenario

Dose required: $5 \text{ mg} \times 74 \text{ kg} = 370 \text{ mg}$

Concentration available: 80 mg in 2 mL $\rightarrow$ 40 mg/mL

Volume to withdraw: $370 \div 40 = 9.25 \text{ mL}$

DeepSeek Response:

Gentamicin
Weight: 74 kg
Order: 5 mg/kg IV once daily
Dose: $74 \times 5 = 370$ mg
Available: 80 mg/2 mL $\rightarrow$ concentration = 40 mg/mL
Volume: $370 \div 40 = 9.25$ mL
✅ Answer: 370 mg, 9.25 mL

ChatGPT Response:

Weight: 74 kg
Order: Gentamicin 5 mg/kg IV once daily
Dose: $74 \times 5 = 370$ mg
Available: 80 mg/2 mL $\rightarrow$ 40 mg/mL
Volume: $370 \div 40 = 9.25$ mL
Answer: 370 mg, 9.25 mL

Case M22

Prompt / Scenario:

Weight: 90 kg
Order: Norepinephrine 0.05 mcg/kg/min
Available: 4 mg in 250 mL

Gemini Response:

Norepinephrine Scenario
Dose required per minute: $0.05 \text{ mcg} \times 90 \text{ kg} = 4.5 \text{ mcg/min}$
Concentration available: 4 mg in 250 mL = 4000 mcg in 250 mL $\rightarrow$ 16 mcg/mL
Rate per minute: $4.5 \div 16 = 0.28125 \text{ mL/min}$
Infusion rate: $0.28125 \times 60 = 16.88 \text{ mL/hr}$

DeepSeek Response:

Norepinephrine
Weight: 90 kg
Order: 0.05 mcg/kg/min
Dose: $90 \times 0.05 = 4.5 \text{ mcg/min}$
Available: 4 mg in 250 mL $\rightarrow$ concentration = 16 mcg/mL
Rate: $(4.5 \div 16) \times 60 = 16.875 \text{ mL/hr}$
✅ Answer: 16.88 mL/hr

ChatGPT Response:

Weight: 90 kg
Order: Norepinephrine 0.05 mcg/kg/min
Dose: $90 \times 0.05 = 4.5$ mcg/min
Available: 4 mg/250 mL $\rightarrow$ 16 mcg/mL
Rate: $(4.5 \div 16) \times 60 = 16.875$ mL/hr
Answer: 16.88 mL/hr

Case M23

Prompt / Scenario:

Weight: 20 kg
Order: Amoxicillin 25 mg/kg/dose
Available: 250 mg/5 mL

Gemini Response:

Amoxicillin Scenario
Dose required: $25 \text{ mg} \times 20 \text{ kg} = 500 \text{ mg}$
Concentration available: 250 mg in 5 mL $\rightarrow$ 50 mg/mL
Volume to administer: $500 \div 50 = 10 \text{ mL}$

DeepSeek Response:

Amoxicillin
Weight: 20 kg
Order: 25 mg/kg/dose
Dose: $20 \times 25 = 500 \text{ mg}$
Available: 250 mg/5 mL $\rightarrow$ concentration = 50 mg/mL
Volume: $500 \div 50 = 10 \text{ mL}$
 Answer: 10 mL

ChatGPT Response:

Weight: 20 kg
Order: Amoxicillin 25 mg/kg/dose
Dose: $20 \times 25 = 500 \text{ mg}$
Available: 250 mg/5 mL $\rightarrow$ 50 mg/mL
Volume: $500 \div 50 = 10 \text{ mL}$
Answer: 500 mg, 10 mL

Case M24

Prompt / Scenario:

Weight: 85 kg

Order: Heparin 18 units/kg/hr

Available: 25,000 units in 500 mL

Gemini Response:

Heparin Scenario

Dose required per hour: $18 \text{ units} \times 85 \text{ kg} = 1530 \text{ units/hr}$

Concentration available: 25000 units in 500 mL $\rightarrow 50 \text{ units/mL}$

Infusion rate: $1530 \div 50 = 30.6 \text{ mL/hr}$

DeepSeek Response:

Heparin

Weight: 85 kg

Order: 18 units/kg/hr

Dose: $85 \times 18 = 1530 \text{ units/hr}$

Available: 25,000 units in 500 mL $\rightarrow$ concentration = 50 units/mL

Rate: $1530 \div 50 = 30.6 \text{ mL/hr}$

 Answer: 30.6 mL/hr

ChatGPT Response:

Weight: 85 kg

Order: Heparin 18 units/kg/hr

Dose: $85 \times 18 = 1530 \text{ units/hr}$

Available: 25,000 units/500 mL $\rightarrow 50 \text{ units/mL}$

Rate: $1530 \div 50 = 30.6 \text{ mL/hr}$

Answer: 30.6 mL/hr

Case M25

Prompt / Scenario:

Weight: 68 kg

Order: Morphine 0.1 mg/kg IV

Available: 10 mg/mL

Gemini Response:

Morphine Scenario

Dose required: $0.1 \text{ mg} \times 68 \text{ kg} = 6.8 \text{ mg}$

Concentration available: 10 mg in 1 mL $\rightarrow 10 \text{ mg/mL}$

Volume to withdraw: $6.8 \div 10 = 0.68$ mL

DeepSeek Response:

Morphine

Weight: 68 kg

Order: 0.1 mg/kg IV

Dose: $68 \times 0.1 = 6.8$ mg

Available: 10 mg/mL

Volume: $6.8 \div 10 = 0.68$ mL

✅ Answer: 0.68 mL

ChatGPT Response:

Weight: 68 kg

Order: Morphine 0.1 mg/kg IV

Dose: $68 \times 0.1 = 6.8$ mg

Available: 10 mg/mL

Volume: $6.8 \div 10 = 0.68$ mL

Answer: 6.8 mg, 0.68 mL

Case M26

Prompt / Scenario:

Weight: 72 kg

Order: Vancomycin 15 mg/kg IV

Available: 1 g vial reconstituted to 20 mL

Gemini Response:

Vancomycin Scenario

Dose required: $15 \text{ mg} \times 72 \text{ kg} = 1080 \text{ mg}$

Concentration available: 1 g (1000 mg) in 20 mL $\rightarrow$ 50 mg/mL

Volume to withdraw: $1080 \div 50 = 21.6$ mL

DeepSeek Response:

Vancomycin

Weight: 72 kg

Order: 15 mg/kg IV

Dose: $72 \times 15 = 1080$ mg

Available: 1 g vial reconstituted to 20 mL $\rightarrow$ concentration = 50 mg/mL

Volume: $1080 \div 50 = 21.6$ mL

✅ Answer: 21.6 mL

ChatGPT Response:

Weight: 72 kg
Order: Vancomycin 15 mg/kg IV
Dose: $72 \times 15 = 1080$ mg
Available: 1 g/20 mL $\rightarrow$ 50 mg/mL
Volume: $1080 \div 50 = 21.6$ mL
Answer: 1080 mg, 21.6 mL

Case M27

Prompt / Scenario:

Weight: 60 kg
Order: Enoxaparin 1 mg/kg SC every 12 hours
Available: 80 mg/0.8 mL

Gemini Response:

Enoxaparin Scenario
Dose required: $1 \text{ mg} \times 60 \text{ kg} = 60 \text{ mg}$
Concentration available: 80 mg in 0.8 mL $\rightarrow$ 100 mg/mL
Volume to administer: $60 \div 100 = 0.6$ mL

DeepSeek Response:

Enoxaparin
Weight: 60 kg
Order: 1 mg/kg SC every 12 hours
Dose: $60 \times 1 = 60$ mg
Available: 80 mg/0.8 mL $\rightarrow$ concentration = 100 mg/mL
Volume: $60 \div 100 = 0.6$ mL
 Answer: 0.6 mL

ChatGPT Response:

Weight: 60 kg
Order: Enoxaparin 1 mg/kg SC every 12 hours
Dose: $60 \times 1 = 60$ mg
Available: 80 mg/0.8 mL $\rightarrow$ 100 mg/mL
Volume: $60 \div 100 = 0.6$ mL
Answer: 60 mg, 0.6 mL

Case M28

Prompt / Scenario:

Weight: 14 kg

Order: Paracetamol 15 mg/kg per dose

Available: 120 mg/5 mL

Gemini Response:

Paracetamol Scenario

Dose required: $15 \text{ mg} \times 14 \text{ kg} = 210 \text{ mg}$

Concentration available: 120 mg in 5 mL $\rightarrow 24 \text{ mg/mL}$

Volume to administer: $210 \div 24 = 8.75 \text{ mL}$

DeepSeek Response:

Paracetamol

Weight: 14 kg

Order: 15 mg/kg per dose

Dose: $14 \times 15 = 210 \text{ mg}$

Available: 120 mg/5 mL $\rightarrow$ concentration = 24 mg/mL

Volume: $210 \div 24 = 8.75 \text{ mL}$

 Answer: 8.75 mL

ChatGPT Response:

Weight: 14 kg

Order: Paracetamol 15 mg/kg per dose

Dose: $14 \times 15 = 210 \text{ mg}$

Available: 120 mg/5 mL $\rightarrow 24 \text{ mg/mL}$

Volume: $210 \div 24 = 8.75 \text{ mL}$

Answer: 210 mg, 8.75 mL

Case M29

Prompt / Scenario:

Weight: 82 kg

Order: Dopamine 4 mcg/kg/min

Available: 200 mg in 100 mL

Gemini Response:

Dopamine Scenario

Dose required per minute: $4 \text{ mcg} \times 82 \text{ kg} = 328 \text{ mcg/min}$

Concentration available: 200 mg in 100 mL = 200000 mcg in 100 mL $\rightarrow 2000 \text{ mcg/mL}$

Rate per minute: $328 \div 2000 = 0.164 \text{ mL/min}$

Infusion rate: $0.164 \times 60 = 9.84 \text{ mL/hr}$

DeepSeek Response:

Dopamine

Weight: 82 kg

Order: 4 mcg/kg/min

Dose: $82 \times 4 = 328 \text{ mcg/min}$

Available: 200 mg in 100 mL = 200,000 mcg in 100 mL → concentration = 2000 mcg/mL

Rate: $(328 \div 2000) \times 60 = 9.84 \text{ mL/hr}$

✅ Answer: 9.84 mL/hr

ChatGPT Response:

Weight: 82 kg

Order: Dopamine 4 mcg/kg/min

Dose: $82 \times 4 = 328 \text{ mcg/min}$

Available: 200 mg/100 mL = 200,000 mcg / 100 mL

Concentration: $200,000 \div 100 = 2000 \text{ mcg/mL}$

Rate: $(328 \div 2000) \times 60 = 9.84 \text{ mL/hr}$

Answer: 9.84 mL/hr

Case M30

Prompt / Scenario:

Weight: 88 kg

Order: Amiodarone 5 mg/kg IV loading dose

Available: 150 mg in 3 mL

Gemini Response:

Amiodarone Scenario

Dose required: $5 \text{ mg} \times 88 \text{ kg} = 440 \text{ mg}$

Concentration available: 150 mg in 3 mL → 50 mg/mL

Volume to withdraw: $440 \div 50 = 8.8 \text{ mL}$

DeepSeek Response:

Amiodarone

Weight: 88 kg

Order: 5 mg/kg IV loading dose

Dose: $88 \times 5 = 440 \text{ mg}$

Available: 150 mg in 3 mL → concentration = 50 mg/mL

Volume: $440 \div 50 = 8.8$ mL

✅ Answer: 440 mg, 8.8 mL

ChatGPT Response:

Weight: 88 kg

Order: Amiodarone 5 mg/kg IV loading dose

Dose: $88 \times 5 = 440$ mg

Available: 150 mg/3 mL $\rightarrow$ 50 mg/mL

Volume: $440 \div 50 = 8.8$ mL

Answer: 440 mg, 8.8 mL

Advanced Level Cases

Case A1

Prompt / Scenario:

Weight: 60 kg

Order: Ceftriaxone 50 mg/kg IV

Available: 1 g in 10 mL

Infusion: dilute in 100 mL NS, infuse over 30 min

Gemini Response:

Ceftriaxone Calculation Breakdown

Total Dose: $60 \text{ kg} \times 50 \text{ mg/kg} = 3,000 \text{ mg}$ (3 g)

Concentration: $1 \text{ g} (1,000 \text{ mg}) \div 10 \text{ mL} = 100 \text{ mg/mL}$

Medication Volume: $3,000 \text{ mg} \div 100 \text{ mg/mL} = 30 \text{ mL}$

Total Infusion Volume: 30 mL medication + 100 mL NS diluent = 130 mL

Infusion Rate (30 min = 0.5 hr): $130 \text{ mL} \div 0.5 \text{ hr} = 260 \text{ mL/hr}$

DeepSeek Response:

Ceftriaxone Scenario

Patient weight: 60 kg

Dose: $50 \text{ mg/kg} \rightarrow 60 \times 50 = 3000 \text{ mg} = 3 \text{ g}$

Available: 1 g in 10 mL (concentration 100 mg/mL)

Volume to withdraw: $3000 \div 100 = 30 \text{ mL}$

Infusion: Dilute in 100 mL NS $\rightarrow$ total volume = 130 mL over 30 min

Rate: $130 \div 0.5 = 260 \text{ mL/hr}$

✅ Answer: 30 mL, 260 mL/hr

ChatGPT Response:

Ceftriaxone Scenario

Dose required: $50 \text{ mg} \times 60 \text{ kg} = 3000 \text{ mg}$ (3 g)

Concentration available: 1 g in 10 mL $\rightarrow 100 \text{ mg/mL}$

Volume to withdraw: $3000 \div 100 = 30 \text{ mL}$

Infusion rate: infuse 100 mL over 30 minutes (0.5 hr)

$100 \div 0.5 = 200 \text{ mL/hr}$

Case A2

Prompt / Scenario:

Weight: 25 kg

Order: Amikacin 15 mg/kg IV

Available: 500 mg in 2 mL

Infusion: dilute in 50 mL NS, infuse over 45 min

Gemini Response:

Amikacin

Dose: $25 \text{ kg} \times 15 \text{ mg/kg} = 375 \text{ mg}$

Concentration: $500 \text{ mg} / 2 \text{ mL} = 250 \text{ mg/mL}$

Volume to Withdraw: $375 \div 250 = 1.5 \text{ mL}$

Total Volume & Duration: $50 \text{ mL} + 1.5 \text{ mL} = 51.5 \text{ mL}$ over 0.75 hr (45 min)

Pump Rate: $51.5 \div 0.75 = 68.67 \text{ mL/hr}$

DeepSeek Response:

Amikacin Scenario

Weight: 25 kg

Dose: $15 \text{ mg/kg} \rightarrow 25 \times 15 = 375 \text{ mg}$

Available: 500 mg in 2 mL (concentration 250 mg/mL)

Volume to withdraw: $375 \div 250 = 1.5 \text{ mL}$

Infusion: Dilute in 50 mL NS $\rightarrow$ total = 51.5 mL over 45 min

Rate: $51.5 \div 0.75 = 68.67 \text{ mL/hr}$

✅ Answer: 1.5 mL, 68.7 mL/hr

ChatGPT Response:

Amikacin Scenario

Dose required: $15 \text{ mg} \times 25 \text{ kg} = 375 \text{ mg}$

Available: 500 mg in 2 mL $\rightarrow 250 \text{ mg/mL}$

Volume: $375 \div 250 = 1.5 \text{ mL}$

Infusion rate: 50 mL over 45 min (0.75 hr); $50 \div 0.75 = 67 \text{ mL/hr}$

Case A3

Prompt / Scenario:

Order: Piperacillin-Tazobactam 4.5 g IV

Available: 4.5 g in 20 mL

Infusion: dilute in 100 mL NS, infuse over 30 min

Gemini Response:

Piperacillin-Tazobactam

Dose: 4.5 g (ordered dose)

Concentration: $4.5 \text{ g} / 20 \text{ mL} = 0.225 \text{ g/mL}$ (225 mg/mL)

Volume to Withdraw: $4.5 \div 0.225 = 20 \text{ mL}$ (entire vial)

Total Volume & Duration: $100\text{ mL} + 20\text{ mL} = 120\text{ mL}$ over 0.5 hr (30 min)
Pump Rate: $120 \div 0.5 = 240\text{ mL/hr}$

DeepSeek Response:

Piperacillin-Tazobactam Scenario
Dose: 4.5 g (already ordered)
Available: 4.5 g in 20 mL (concentration 225 mg/mL)
Volume to withdraw: 20 mL (entire vial)
Infusion: Dilute in 100 mL NS $\rightarrow$ total = 120 mL over 30 min
Rate: $120 \div 0.5 = 240\text{ mL/hr}$
 Answer: 20 mL, 240 mL/hr

ChatGPT Response:

Piperacillin–Tazobactam
Dose ordered = 4.5 g; vial contains 4.5 g in 20 mL
Withdraw: 20 mL
Infusion rate: 100 mL over 30 min; $100 \div 0.5 = 200\text{ mL/hr}$

Case A4

Prompt / Scenario:

Weight: 12 kg
Order: Paracetamol IV 15 mg/kg
Available: 1 g in 100 mL
Infusion: over 15 min

Gemini Response:

Paracetamol IV Scenario
Dose required: $15\text{ mg} \times 12\text{ kg} = 180\text{ mg}$
Available: 1000 mg in 100 mL $\rightarrow 10\text{ mg/mL}$
Volume: $180 \div 10 = 18\text{ mL}$
Infusion rate: 15 min = 0.25 hr; $18 \div 0.25 = 72\text{ mL/hr}$

DeepSeek Response:

Paracetamol IV Scenario
Weight: 12 kg
Dose: $15\text{ mg/kg} \rightarrow 12 \times 15 = 180\text{ mg}$
Available: 1 g in 100 mL (concentration 10 mg/mL)
Volume for dose: $180 \div 10 = 18\text{ mL}$
Infusion: Over 15 min $\rightarrow$ rate = $18 \div 0.25 = 72\text{ mL/hr}$

✅ Answer: 18 mL, 72 mL/hr

ChatGPT Response:

Paracetamol IV

Dose required: $15 \text{ mg} \times 12 \text{ kg} = 180 \text{ mg}$

Available: 1000 mg in 100 mL $\rightarrow 10 \text{ mg/mL}$

Volume: $180 \div 10 = 18 \text{ mL}$

Infusion rate: 15 min = 0.25 hr; $18 \div 0.25 = 72 \text{ mL/hr}$

Case A5

Prompt / Scenario:

Weight: 70 kg

Order: Gentamicin 5 mg/kg IV

Available: 80 mg in 2 mL

Infusion: dilute in 100 mL NS, infuse over 60 min

Gemini Response:

Gentamicin

Dose: $70 \text{ kg} \times 5 \text{ mg/kg} = 350 \text{ mg}$

Concentration: $80 \text{ mg} / 2 \text{ mL} = 40 \text{ mg/mL}$

Volume to Withdraw: $350 \div 40 = 8.75 \text{ mL}$

Total Volume & Duration: $100 \text{ mL} + 8.75 \text{ mL} = 108.75 \text{ mL}$ over 1 hr (60 min)

Pump Rate: $108.75 \div 1 = 108.75 \text{ mL/hr}$

DeepSeek Response:

Gentamicin Scenario

Weight: 70 kg

Dose: $5 \text{ mg/kg} \rightarrow 70 \times 5 = 350 \text{ mg}$

Available: 80 mg in 2 mL (concentration 40 mg/mL)

Volume to withdraw: $350 \div 40 = 8.75 \text{ mL}$

Infusion: Dilute in 100 mL NS $\rightarrow$ total = 108.75 mL over 60 min

Rate: $108.75 \div 1 = 108.75 \text{ mL/hr}$

✅ Answer: 8.75 mL, 108.75 mL/hr

ChatGPT Response:

Gentamicin

Dose required: $5 \text{ mg} \times 70 \text{ kg} = 350 \text{ mg}$

Available: 80 mg in 2 mL $\rightarrow 40 \text{ mg/mL}$

Volume: $350 \div 40 = 8.75 \text{ mL}$

Infusion rate: 100 mL over 60 min = 100 mL/hr

Case A6

Prompt / Scenario:

Weight: 50 kg

Order: Meropenem 20 mg/kg IV

Available: 1 g in 10 mL

Infusion: dilute in 100 mL NS, infuse over 30 min

Gemini Response:

Meropenem

Dose: $50 \text{ kg} \times 20 \text{ mg/kg} = 1000 \text{ mg}$ (1 g)

Concentration: $1000 \text{ mg} / 10 \text{ mL} = 100 \text{ mg/mL}$

Volume to Withdraw: $1000 \div 100 = 10 \text{ mL}$

Total Volume & Duration: $100 \text{ mL} + 10 \text{ mL} = 110 \text{ mL}$ over 0.5 hr (30 min)

Pump Rate: $110 \div 0.5 = 220 \text{ mL/hr}$

DeepSeek Response:

Meropenem Scenario

Weight: 50 kg

Dose: $20 \text{ mg/kg} \rightarrow 50 \times 20 = 1000 \text{ mg} = 1 \text{ g}$

Available: 1 g in 10 mL (concentration 100 mg/mL)

Volume to withdraw: $1000 \div 100 = 10 \text{ mL}$

Infusion: Dilute in 100 mL NS $\rightarrow$ total = 110 mL over 30 min

Rate: $110 \div 0.5 = 220 \text{ mL/hr}$

✅ Answer: 10 mL, 220 mL/hr

ChatGPT Response:

Meropenem

Dose required: $20 \text{ mg} \times 50 \text{ kg} = 1000 \text{ mg}$ (1 g)

Available: 1 g in 10 mL

Withdraw: 10 mL

Infusion rate: 100 mL over 30 min = 200 mL/hr

Case A7

Prompt / Scenario:

Weight: 18 kg

Order: Acyclovir 10 mg/kg IV

Available: 250 mg in 10 mL

Infusion: dilute in 50 mL NS, infuse over 60 min

Gemini Response:

Acyclovir

Dose: $18 \text{ kg} \times 10 \text{ mg/kg} = 180 \text{ mg}$

Concentration: $250 \text{ mg} / 10 \text{ mL} = 25 \text{ mg/mL}$

Volume to Withdraw: $180 \div 25 = 7.2 \text{ mL}$

Total Volume & Duration: $50 \text{ mL} + 7.2 \text{ mL} = 57.2 \text{ mL}$ over 1 hr (60 min)

Pump Rate: $57.2 \div 1 = 57.2 \text{ mL/hr}$

DeepSeek Response:

Acyclovir Scenario

Weight: 18 kg

Dose: $10 \text{ mg/kg} \rightarrow 18 \times 10 = 180 \text{ mg}$

Available: 250 mg in 10 mL (concentration 25 mg/mL)

Volume to withdraw: $180 \div 25 = 7.2 \text{ mL}$

Infusion: Dilute in 50 mL NS $\rightarrow$ total = 57.2 mL over 60 min

Rate: $57.2 \div 1 = 57.2 \text{ mL/hr}$

✅ Answer: 7.2 mL, 57.2 mL/hr

ChatGPT Response:

Acyclovir

Dose required: $10 \text{ mg} \times 18 \text{ kg} = 180 \text{ mg}$

Available: 250 mg in 10 mL $\rightarrow 25 \text{ mg/mL}$

Volume: $180 \div 25 = 7.2 \text{ mL}$

Infusion rate: 50 mL over 60 min = 50 mL/hr

Case A8

Prompt / Scenario:

Order: Levofloxacin 750 mg IV

Available: 500 mg in 100 mL

Infusion: over 90 min

Gemini Response:

Levofloxacin Scenario

Need 750 mg; available 500 mg in 100 mL

Ratio: 750 mg = 150 mL total volume

Infuse over 90 min (1.5 hr): $150 \div 1.5 = 100 \text{ mL/hr}$

DeepSeek Response:

Levofloxacin Scenario

Dose: 750 mg

Available: 500 mg in 100 mL (concentration 5 mg/mL)

Volume needed: $750 \div 5 = 150$ mL

Infuse over 90 min: rate = $150 \div 1.5 = 100$ mL/hr

✅ Answer: 150 mL, 100 mL/hr

ChatGPT Response:

Levofloxacin

Need 750 mg; available 500 mg in 100 mL

Ratio: 750 mg = 150 mL total volume

Infuse over 90 min (1.5 hr); $150 \div 1.5 = 100$ mL/hr

Case A9

Prompt / Scenario:

Weight: 30 kg

Order: Metronidazole 7.5 mg/kg IV

Available: 500 mg in 100 mL

Infusion: over 60 min

Gemini Response:

Metronidazole Scenario

Dose: $7.5 \times 30 = 225$ mg

Available: 500 mg in 100 mL $\rightarrow$ 5 mg/mL

Volume: $225 \div 5 = 45$ mL

Infusion rate over 60 min = 45 mL/hr

DeepSeek Response:

Metronidazole Scenario

Weight: 30 kg

Dose: 7.5 mg/kg $\rightarrow 30 \times 7.5 = 225$ mg

Available: 500 mg in 100 mL (concentration 5 mg/mL)

Volume needed: $225 \div 5 = 45$ mL

Infuse over 60 min: rate = $45 \div 1 = 45$ mL/hr

✅ Answer: 45 mL, 45 mL/hr

ChatGPT Response:

Metronidazole

Dose: $7.5 \times 30 = 225$ mg
Available: 500 mg in 100 mL $\rightarrow 5$ mg/mL
Volume: $225 \div 5 = 45$ mL
Infusion rate over 60 min = 45 mL/hr

Case A10

Prompt / Scenario:

Weight: 65 kg
Order: Dopamine 5 mcg/kg/min IV infusion
Available: 200 mg added to 250 mL D5W (total 255 mL)

Gemini Response:

Dopamine Infusion
Dose Rate: $65 \text{ kg} \times 5 \text{ mcg/kg/min} = 325 \text{ mcg/min}$ (19,500 mcg/hr)
Concentration: $200,000 \text{ mcg} \div 255 \text{ mL}$ (5 mL drug + 250 mL D5W) = 784.31 mcg/mL
Pump Rate: $(325 \div 784.31) \times 60 = 24.86$ mL/hr

DeepSeek Response:

Dopamine Infusion Scenario
Weight: 65 kg
Dose: $5 \text{ mcg/kg/min} \rightarrow 65 \times 5 = 325 \text{ mcg/min}$
Available: 200 mg added to 250 mL D5W $\rightarrow$ total volume = 255 mL (200,000 mcg)
Concentration: $200,000 \div 255 \approx 784.31 \text{ mcg/mL}$
Rate: $(325 \div 784.31) \times 60 \approx 24.86 \text{ mL/hr}$
 Answer: 24.9 mL/hr

ChatGPT Response:

Dopamine Infusion
Dose required: $5 \text{ mcg} \times 65 \text{ kg} = 325 \text{ mcg/min} = 0.325 \text{ mg/min}$
Per hour: $0.325 \times 60 = 19.5 \text{ mg/hr}$
Concentration: 200 mg in 250 mL = 0.8 mg/mL
Rate: $19.5 \div 0.8 = 24.4 \text{ mL/hr}$

Case A11

Prompt / Scenario:

Weight: 55 kg
Order: Clindamycin 10 mg/kg IV
Available: 600 mg in 4 mL

Infusion: dilute in 100 mL NS, infuse over 40 min

Gemini Response:

Clindamycin

Dose: $55 \text{ kg} \times 10 \text{ mg/kg} = 550 \text{ mg}$

Concentration: $600 \text{ mg} / 4 \text{ mL} = 150 \text{ mg/mL}$

Volume to Withdraw: $550 \div 150 = 3.67 \text{ mL}$

Total Volume & Duration: $100 \text{ mL} + 3.67 \text{ mL} = 103.67 \text{ mL}$ over 0.6667 hr (40 min)

Pump Rate: $103.67 \div (40/60) = 155.5 \text{ mL/hr}$

DeepSeek Response:

Clindamycin Scenario

Weight: 55 kg

Dose: $10 \text{ mg/kg} \rightarrow 55 \times 10 = 550 \text{ mg}$

Available: 600 mg in 4 mL (concentration 150 mg/mL)

Volume to withdraw: $550 \div 150 = 3.67 \text{ mL}$

Infusion: Dilute in 100 mL NS $\rightarrow$ total = 103.67 mL over 40 min

Rate: $103.67 \div 0.6667 \approx 155.5 \text{ mL/hr}$

✅ Answer: 3.67 mL, 155.5 mL/hr

ChatGPT Response:

Clindamycin

Dose: $10 \times 55 = 550 \text{ mg}$

Available: 600 mg in 4 mL $\rightarrow$ 150 mg/mL

Volume: $550 \div 150 = 3.7 \text{ mL}$

Infusion rate: 100 mL over 40 min (0.67 hr); $100 \div 0.67 = 150 \text{ mL/hr}$

Case A12

Prompt / Scenario:

Weight: 22 kg

Order: Cefotaxime 50 mg/kg IV

Available: 1 g in 10 mL

Infusion: dilute in 50 mL NS, infuse over 30 min

Gemini Response:

Cefotaxime Scenario

Dose: $22 \text{ kg} \times 50 \text{ mg/kg} = 1100 \text{ mg}$ (1.1 g)

Concentration: $1000 \text{ mg} / 10 \text{ mL} = 100 \text{ mg/mL}$

Volume to Withdraw: $1100 \div 100 = 11 \text{ mL}$

Total Volume & Duration: 50 mL + 11 mL = 61 mL over 0.5 hr (30 min)
Pump Rate: $61 \div 0.5 = 122 \text{ mL/hr}$

DeepSeek Response:

Cefotaxime Scenario
Weight: 22 kg
Dose: $50 \text{ mg/kg} \rightarrow 22 \times 50 = 1100 \text{ mg} = 1.1 \text{ g}$
Available: 1 g in 10 mL (concentration 100 mg/mL)
Volume to withdraw: $1100 \div 100 = 11 \text{ mL}$
Infusion: Dilute in 50 mL NS $\rightarrow$ total = 61 mL over 30 min
Rate: $61 \div 0.5 = 122 \text{ mL/hr}$
 Answer: 11 mL, 122 mL/hr

ChatGPT Response:

Cefotaxime
Dose: $50 \times 22 = 1100 \text{ mg}$
Available: 1 g in 10 mL $\rightarrow 100 \text{ mg/mL}$
Volume: $1100 \div 100 = 11 \text{ mL}$
Infusion rate: 50 mL over 30 min = 100 mL/hr

Case A13

Prompt / Scenario:

Weight: 75 kg
Order: Phenytoin loading dose 15 mg/kg IV
Available: 250 mg in 5 mL
Infusion: dilute in 100 mL NS, infuse over 60 min

Gemini Response:

Phenytoin Loading Dose
Dose: $75 \text{ kg} \times 15 \text{ mg/kg} = 1125 \text{ mg}$
Concentration: $250 \text{ mg} / 5 \text{ mL} = 50 \text{ mg/mL}$
Volume to Withdraw: $1125 \div 50 = 22.5 \text{ mL}$
Total Volume & Duration: 100 mL + 22.5 mL = 122.5 mL over 1 hr (60 min)
Pump Rate: $122.5 \div 1 = 122.5 \text{ mL/hr}$

DeepSeek Response:

Phenytoin Loading Dose Scenario
Weight: 75 kg
Dose: $15 \text{ mg/kg} \rightarrow 75 \times 15 = 1125 \text{ mg}$

Available: 250 mg in 5 mL (concentration 50 mg/mL)

Volume to withdraw: $1125 \div 50 = 22.5$ mL

Infusion: Dilute in 100 mL NS $\rightarrow$ total = 122.5 mL over 60 min

Rate: $122.5 \div 1 = 122.5$ mL/hr

✅ Answer: 22.5 mL, 122.5 mL/hr

ChatGPT Response:

Phenytoin Loading

Dose: $15 \times 75 = 1125$ mg

Available: 250 mg in 5 mL $\rightarrow$ 50 mg/mL

Volume: $1125 \div 50 = 22.5$ mL

Infusion rate: 100 mL over 60 min = 100 mL/hr

Case A14

Prompt / Scenario:

Weight: 40 kg

Order: Azithromycin 10 mg/kg IV

Available: 500 mg in 5 mL

Infusion: dilute in 100 mL NS, infuse over 60 min

Gemini Response:

Azithromycin

Dose: $40 \text{ kg} \times 10 \text{ mg/kg} = 400$ mg

Concentration: $500 \text{ mg} / 5 \text{ mL} = 100 \text{ mg/mL}$

Volume to Withdraw: $400 \div 100 = 4$ mL

Total Volume & Duration: $100 \text{ mL} + 4 \text{ mL} = 104 \text{ mL}$ over 1 hr (60 min)

Pump Rate: $104 \div 1 = 104$ mL/hr

DeepSeek Response:

Azithromycin Scenario

Weight: 40 kg

Dose: $10 \text{ mg/kg} \rightarrow 40 \times 10 = 400$ mg

Available: 500 mg in 5 mL (concentration 100 mg/mL)

Volume to withdraw: $400 \div 100 = 4$ mL

Infusion: Dilute in 100 mL NS $\rightarrow$ total = 104 mL over 60 min

Rate: $104 \div 1 = 104$ mL/hr

✅ Answer: 4 mL, 104 mL/hr

ChatGPT Response:

Azithromycin

Dose: $10 \times 40 = 400$ mg

Available: 500 mg in 5 mL $\rightarrow 100$ mg/mL

Volume: $400 \div 100 = 4$ mL

Infusion rate: 100 mL over 1 hr = 100 mL/hr

Case A15

Prompt / Scenario:

Weight: 68 kg

Order: Norepinephrine 0.1 mcg/kg/min IV infusion

Available: 4 mg added to 250 mL D5W (total 254 mL)

Gemini Response:

Norepinephrine Infusion

Dose Rate: $68 \text{ kg} \times 0.1 \text{ mcg/kg/min} = 6.8 \text{ mcg/min}$ (408 mcg/hr)

Concentration: $4000 \text{ mcg} \div 254 \text{ mL}$ (4 mL drug + 250 mL D5W) = 15.748 mcg/mL

Pump Rate: $(6.8 \div 15.748) \times 60 = 25.91 \text{ mL/hr}$

DeepSeek Response:

Norepinephrine Infusion Scenario

Weight: 68 kg

Dose: $0.1 \text{ mcg/kg/min} \rightarrow 68 \times 0.1 = 6.8 \text{ mcg/min}$

Available: 4 mg in 4 mL added to 250 mL D5W $\rightarrow$ total volume = 254 mL (4000 mcg)

Concentration: $4000 \div 254 \approx 15.748 \text{ mcg/mL}$

Rate: $(6.8 \div 15.748) \times 60 \approx 25.91 \text{ mL/hr}$

✅ Answer: 25.9 mL/hr

ChatGPT Response:

Norepinephrine

Dose: $0.1 \times 68 = 6.8 \text{ mcg/min} = 0.0068 \text{ mg/min}$

Per hour: 0.408 mg/hr

Concentration: 4 mg in 250 mL = 0.016 mg/mL

Rate: $0.408 \div 0.016 = 25.5 \text{ mL/hr}$

Case A16

Prompt / Scenario:

Weight: 80 kg

Order: Nitroprusside 0.4 mcg/kg/min IV infusion

Available: 50 mg in 250 mL

Gemini Response:

Nitroprusside Infusion Scenario

Dose required: $0.4 \text{ mcg} \times 80 \text{ kg} = 32 \text{ mcg/min} = 0.032 \text{ mg/min}$

Per hour: $0.032 \times 60 = 1.92 \text{ mg/hr}$

Concentration: 50 mg in 250 mL = 0.2 mg/mL

Infusion rate: $1.92 \div 0.2 = 9.6 \text{ mL/hr}$

DeepSeek Response:

Nitroprusside Infusion

Weight: 80 kg

Dose: $0.4 \text{ mcg/kg/min} \rightarrow 80 \times 0.4 = 32 \text{ mcg/min}$

Available: 50 mg in 250 mL (concentration 200 mcg/mL)

Rate: $(32 \div 200) \times 60 = 9.6 \text{ mL/hr}$

✅ Answer: 9.6 mL/hr

ChatGPT Response:

Nitroprusside Infusion

Dose required: $0.4 \text{ mcg} \times 80 \text{ kg} = 32 \text{ mcg/min} = 0.032 \text{ mg/min}$

Per hour: $0.032 \times 60 = 1.92 \text{ mg/hr}$

Concentration: 50 mg in 250 mL = 0.2 mg/mL

Infusion rate: $1.92 \div 0.2 = 9.6 \text{ mL/hr}$

Case A17

Prompt / Scenario:

Weight: 70 kg

Bag: Dopamine 400 mg in 250 mL, pump running at 26 mL/hr

Find: dose in mcg/kg/min (reverse calculation)

Gemini Response:

Dopamine (Reverse Calculation)

Concentration: 400 mg in 250 mL = 1.6 mg/mL

Pump running at 26 mL/hr $\rightarrow 26 \times 1.6 = 41.6 \text{ mg/hr}$

Convert to mcg/min: $41.6 \text{ mg} = 41,600 \text{ mcg}$; $41,600 \div 60 = 693 \text{ mcg/min}$

Patient weight = 70 kg; $693 \div 70 = 9.9 \text{ mcg/kg/min}$

DeepSeek Response:

Dopamine Reverse Calculation

Weight: 70 kg

Bag: 400 mg in 250 mL (concentration 1600 mcg/mL)

Pump rate: 26 mL/hr $\rightarrow$ mcg/min = $(26 \times 1600) \div 60 \approx 693.33$ mcg/min

Per kg: $693.33 \div 70 \approx 9.9$ mcg/kg/min

✅ Answer: 9.9 mcg/kg/min

ChatGPT Response:

Dopamine (Reverse Calculation)

Concentration: 400 mg in 250 mL = 1.6 mg/mL

Pump running at 26 mL/hr: $26 \times 1.6 = 41.6$ mg/hr

Convert to mcg/min: 41.6 mg = 41,600 mcg; $41,600 \div 60 = 693$ mcg/min

Patient weight = 70 kg; $693 \div 70 = 9.9$ mcg/kg/min

Case A18

Prompt / Scenario:

Weight: 75 kg

Order: Dobutamine 15 mcg/kg/min IV infusion

Available: 500 mg in 250 mL

Gemini Response:

Dobutamine Infusion Scenario

Dose required: $15 \text{ mcg} \times 75 \text{ kg} = 1125 \text{ mcg/min} = 1.125 \text{ mg/min}$

Per hour: $1.125 \times 60 = 67.5 \text{ mg/hr}$

Concentration: 500 mg in 250 mL = 2 mg/mL

Rate: $67.5 \div 2 = 33.75 \text{ mL/hr}$

DeepSeek Response:

Dobutamine Infusion

Weight: 75 kg

Dose: $15 \text{ mcg/kg/min} \rightarrow 75 \times 15 = 1125 \text{ mcg/min}$

Bag: 500 mg in 250 mL (concentration 2000 mcg/mL)

Rate: $(1125 \div 2000) \times 60 = 33.75 \text{ mL/hr}$

✅ Answer: 33.75 mL/hr

ChatGPT Response:

Dobutamine Infusion

Dose required: $15 \text{ mcg} \times 75 \text{ kg} = 1125 \text{ mcg/min} = 1.125 \text{ mg/min}$

Per hour: $1.125 \times 60 = 67.5 \text{ mg/hr}$

Concentration: 500 mg in 250 mL = 2 mg/mL

Rate: $67.5 \div 2 = 33.75$ mL/hr

Case A19

Prompt / Scenario:

Order: Amiodarone 0.5 mg/min IV infusion

Available: 450 mg in 250 mL

Gemini Response:

Amiodarone Infusion Scenario

Order: 0.5 mg/min; per hour: $0.5 \times 60 = 30$ mg/hr

Concentration: 450 mg in 250 mL = 1.8 mg/mL

Rate: $30 \div 1.8 = 16.7$ mL/hr

DeepSeek Response:

Amiodarone Infusion

Dose: 0.5 mg/min = 500 mcg/min

Bag: 450 mg in 250 mL (concentration 1800 mcg/mL)

Rate: $(500 \div 1800) \times 60 \approx 16.67$ mL/hr

✅ Answer: 16.7 mL/hr

ChatGPT Response:

Amiodarone Infusion

Order: 0.5 mg/min; per hour: $0.5 \times 60 = 30$ mg/hr

Concentration: 450 mg in 250 mL = 1.8 mg/mL

Rate: $30 \div 1.8 = 16.7$ mL/hr

Case A20

Prompt / Scenario:

Order: Nitroglycerin 12 mcg/min IV infusion

Available: 50 mg in 250 mL

Gemini Response:

Nitroglycerin Infusion Scenario

Order: 12 mcg/min = 0.012 mg/min

Per hour: $0.012 \times 60 = 0.72$ mg/hr

Concentration: 50 mg in 250 mL = 0.2 mg/mL

Rate: $0.72 \div 0.2 = 3.6$ mL/hr

DeepSeek Response:

Nitroglycerin Infusion

Dose: 12 mcg/min

Bag: 50 mg in 250 mL (concentration 200 mcg/mL)

Rate: $(12 \div 200) \times 60 = 3.6 \text{ mL/hr}$

✅ Answer: 3.6 mL/hr

ChatGPT Response:

Nitroglycerin Infusion

Order: 12 mcg/min = 0.012 mg/min

Per hour: $0.012 \times 60 = 0.72 \text{ mg/hr}$

Concentration: 50 mg in 250 mL = 0.2 mg/mL

Rate: $0.72 \div 0.2 = 3.6 \text{ mL/hr}$

Case A21

Prompt / Scenario:

Weight: 65 kg

Bag: Dobutamine 500 mg in 250 mL, pump running at 30 mL/hr

Find: dose in mcg/kg/min (reverse calculation)

Gemini Response:

Dobutamine Reverse Calculation

Concentration: $500 \text{ mg} \div 250 \text{ mL} = 2 \text{ mg/mL} = 2,000 \text{ mcg/mL}$

Mass Flow Rate: $30 \text{ mL/hr} \times 2,000 \text{ mcg/mL} = 60,000 \text{ mcg/hr}$

Minute Dose: $60,000 \text{ mcg/hr} \div 60 \text{ min} = 1,000 \text{ mcg/min}$

Weight-Based Dose: $1,000 \text{ mcg/min} \div 65 \text{ kg} = 15.38 \text{ mcg/kg/min}$

DeepSeek Response:

Dobutamine Reverse Calculation

Weight: 65 kg

Bag: 500 mg in 250 mL (concentration 2000 mcg/mL)

Pump rate: 30 mL/hr $\rightarrow \text{mcg/min} = (30 \times 2000) \div 60 = 1000 \text{ mcg/min}$

Per kg: $1000 \div 65 \approx 15.38 \text{ mcg/kg/min}$

✅ Answer: 15.4 mcg/kg/min

ChatGPT Response:

Dobutamine (Reverse)

Concentration: 500 mg in 250 mL = 2 mg/mL

Pump = 30 mL/hr; $30 \times 2 = 60 \text{ mg/hr}$

Convert to mcg/min: $60,000 \text{ mcg} \div 60 = 1000 \text{ mcg/min}$
Weight = 65 kg; $1000 \div 65 = 15.4 \text{ mcg/kg/min}$

Case A22

Prompt / Scenario:

Order: Diltiazem 2 mg/hr IV infusion
Available: 125 mg in 500 mL

Gemini Response:

Diltiazem Infusion
Concentration: $125 \text{ mg} \div 500 \text{ mL} = 0.25 \text{ mg/mL}$
Infusion Rate: $2 \text{ mg/hr} \div 0.25 \text{ mg/mL} = 8 \text{ mL/hr}$

DeepSeek Response:

Diltiazem Infusion
Dose: 2 mg/hr
Bag: 125 mg in 500 mL (concentration 0.25 mg/mL)
Rate: $2 \div 0.25 = 8 \text{ mL/hr}$
 Answer: 8 mL/hr

ChatGPT Response:

Diltiazem Infusion
Order: 2 mg/hr
Concentration: 125 mg in 500 mL = 0.25 mg/mL
Rate: $2 \div 0.25 = 8 \text{ mL/hr}$

Case A23

Prompt / Scenario:

Weight: 70 kg
Order: Ceftriaxone 50 mg/kg/day IV, divided every 12 hours
Available: 1 g in 10 mL
Infusion: dilute in 100 mL NS, infuse over 30 min

Gemini Response:

Ceftriaxone Divided Dose
Total Daily Dose: $70 \text{ kg} \times 50 \text{ mg/kg} = 3,500 \text{ mg} = 3.5 \text{ g}$
Dose Per Administration (q12h): $3,500 \text{ mg} \div 2 = 1,750 \text{ mg}$
Concentration: $1 \text{ g (1,000 mg)} \div 10 \text{ mL} = 100 \text{ mg/mL}$

Medication Volume: $1,750 \text{ mg} \div 100 \text{ mg/mL} = 17.5 \text{ mL}$
Total Infusion Volume: $17.5 \text{ mL} + 100 \text{ mL NS} = 117.5 \text{ mL}$
Infusion Rate (30 min = 0.5 hr): $117.5 \text{ mL} \div 0.5 \text{ hr} = 235 \text{ mL/hr}$

DeepSeek Response:

Ceftriaxone Divided Dose
Weight: 70 kg
Daily dose: $50 \text{ mg/kg} \rightarrow 70 \times 50 = 3500 \text{ mg} = 3.5 \text{ g}$
Per dose: $3500 \div 2 = 1750 \text{ mg}$
Available: 1 g in 10 mL (concentration 100 mg/mL)
Volume per dose: $1750 \div 100 = 17.5 \text{ mL}$
Infusion: Dilute in 100 mL NS $\rightarrow$ total = 117.5 mL over 30 min
Rate: $117.5 \div 0.5 = 235 \text{ mL/hr}$
 Answer: 1750 mg, 17.5 mL, 235 mL/hr

ChatGPT Response:

Ceftriaxone Divided Dose
Total daily dose: $50 \times 70 = 3500 \text{ mg/day}$
Divided into 2 doses: $3500 \div 2 = 1750 \text{ mg per dose}$
Concentration: 1 g in 10 mL $\rightarrow$ 100 mg/mL
Volume: $1750 \div 100 = 17.5 \text{ mL}$
Infusion rate: 100 mL over 30 min = 200 mL/hr

Case A24

Prompt / Scenario:

Weight: 72 kg
Order: Norepinephrine titration, starting 0.05 mcg/kg/min, maximum 0.15 mcg/kg/min
Available: 4 mg in 250 mL

Gemini Response:

Norepinephrine Titration
Starting Dose: $72 \text{ kg} \times 0.05 \text{ mcg/kg/min} = 3.6 \text{ mcg/min}$
Maximum Dose: $72 \text{ kg} \times 0.15 \text{ mcg/kg/min} = 10.8 \text{ mcg/min}$
Concentration: $4 \text{ mg (4,000 mcg)} \div 250 \text{ mL} = 16 \text{ mcg/mL}$
Starting Pump Rate: $(3.6 \text{ mcg/min} \div 16 \text{ mcg/mL}) \times 60 \text{ min/hr} = 13.5 \text{ mL/hr}$
Maximum Pump Rate: $(10.8 \text{ mcg/min} \div 16 \text{ mcg/mL}) \times 60 \text{ min/hr} = 40.5 \text{ mL/hr}$

DeepSeek Response:

Norepinephrine Titration

Weight: 72 kg

Starting dose: 0.05 mcg/kg/min $\rightarrow 72 \times 0.05 = 3.6$ mcg/min $\rightarrow$ rate = $(3.6 \div 16) \times 60 = 13.5$ mL/hr

Max dose: 0.15 mcg/kg/min $\rightarrow 72 \times 0.15 = 10.8$ mcg/min $\rightarrow$ rate = $(10.8 \div 16) \times 60 = 40.5$ mL/hr

Available: 4 mg in 250 mL (concentration 16 mcg/mL)

✅ Answer: 13.5 mL/hr, 40.5 mL/hr

ChatGPT Response:

Norepinephrine Titration

Concentration: 4 mg in 250 mL = 0.016 mg/mL

Starting dose (0.05 mcg/kg/min): $0.05 \times 72 = 3.6$ mcg/min = 0.0036 mg/min

Per hour: $0.0036 \times 60 = 0.216$ mg/hr; Rate: $0.216 \div 0.016 = 13.5$ mL/hr

Maximum dose (0.15 mcg/kg/min): $0.15 \times 72 = 10.8$ mcg/min = 0.0108 mg/min

Per hour: $0.0108 \times 60 = 0.648$ mg/hr; Rate: $0.648 \div 0.016 = 40.5$ mL/hr

Case A25

Prompt / Scenario:

Weight: 65 kg

Order: Dobutamine 5 mcg/kg/min IV infusion for 6 hours

Available: 250 mg in 250 mL

Gemini Response:

Dobutamine Fixed-Time Infusion

Minute Dose: $65 \text{ kg} \times 5 \text{ mcg/kg/min} = 325$ mcg/min

Concentration: $250 \text{ mg} (250,000 \text{ mcg}) \div 250 \text{ mL} = 1,000$ mcg/mL

Pump Rate: $(325 \text{ mcg/min} \div 1,000 \text{ mcg/mL}) \times 60 \text{ min/hr} = 19.5$ mL/hr

Total Volume over 6 Hours: $19.5 \text{ mL/hr} \times 6 \text{ hr} = 117$ mL

DeepSeek Response:

Dobutamine Fixed-Time Infusion

Weight: 65 kg

Dose: $5 \text{ mcg/kg/min} \rightarrow 65 \times 5 = 325$ mcg/min

Available: 250 mg in 250 mL (concentration 1000 mcg/mL)

Rate: $(325 \div 1000) \times 60 = 19.5$ mL/hr

Over 6 hours: $19.5 \times 6 = 117$ mL

✅ Answer: 19.5 mL/hr, 117 mL

ChatGPT Response:

Dobutamine 6-Hour Infusion

Dose: $5 \times 65 = 325 \text{ mcg/min} = 0.325 \text{ mg/min}$

Per hour: $0.325 \times 60 = 19.5 \text{ mg/hr}$

Concentration: $250 \text{ mg in } 250 \text{ mL} = 1 \text{ mg/mL}$

Rate: $19.5 \div 1 = 19.5 \text{ mL/hr}$

Total volume in 6 hours: $19.5 \times 6 = 117 \text{ mL}$

Case A26

Prompt / Scenario:

Order: Magnesium sulfate 4 g IV

Available: 1 g per 10 mL

Infusion: dilute in 100 mL, infuse over 30 min

Gemini Response:

Magnesium Sulfate Loading Dose

Medication Volume: $4 \text{ g} \times (10 \text{ mL} / 1 \text{ g}) = 40 \text{ mL}$

Total Infusion Volume: $40 \text{ mL} + 100 \text{ mL} = 140 \text{ mL}$

Infusion Rate (30 min = 0.5 hr): $140 \text{ mL} \div 0.5 \text{ hr} = 280 \text{ mL/hr}$

DeepSeek Response:

Magnesium Sulfate Loading Dose

Dose: 4 g

Available: 1 g per 10 mL → need $4 \times 10 = 40 \text{ mL}$

Infusion: Dilute in 100 mL → total = 140 mL over 30 min

Rate: $140 \div 0.5 = 280 \text{ mL/hr}$

✅ Answer: 40 mL, 280 mL/hr

ChatGPT Response:

Magnesium Sulfate Loading

Order: 4 g; available 1 g in 10 mL

Volume: $4 \times 10 = 40 \text{ mL}$

Infusion rate: 100 mL over 30 min = 200 mL/hr

Case A27

Prompt / Scenario:

Order: Potassium chloride, 100 mL total volume, infuse over 2 hours

Gemini Response:

Potassium Chloride Infusion
Infusion Rate: $100 \text{ mL} \div 2 \text{ hr} = 50 \text{ mL/hr}$

DeepSeek Response:

Potassium Chloride Infusion
Total volume: 100 mL over 2 hours
Rate: $100 \div 2 = 50 \text{ mL/hr}$
 Answer: 50 mL/hr

ChatGPT Response:

Potassium Chloride
100 mL over 2 hours
Rate: $100 \div 2 = 50 \text{ mL/hr}$

Case A28

Prompt / Scenario:

Weight: 70 kg
Order: Vancomycin 15 mg/kg IV
Available: 500 mg in 10 mL
Infusion: dilute in 250 mL NS, infuse over 90 min

Gemini Response:

Vancomycin Infusion
Total Dose: $70 \text{ kg} \times 15 \text{ mg/kg} = 1,050 \text{ mg}$
Concentration: $500 \text{ mg} \div 10 \text{ mL} = 50 \text{ mg/mL}$
Medication Volume: $1,050 \text{ mg} \div 50 \text{ mg/mL} = 21 \text{ mL}$
Total Infusion Volume: $21 \text{ mL} + 250 \text{ mL NS} = 271 \text{ mL}$
Infusion Rate (90 min = 1.5 hr): $271 \text{ mL} \div 1.5 \text{ hr} = 180.67 \text{ mL/hr}$

DeepSeek Response:

Vancomycin Infusion
Weight: 70 kg
Dose: $15 \text{ mg/kg} \rightarrow 70 \times 15 = 1050 \text{ mg}$
Available: 500 mg in 10 mL (concentration 50 mg/mL)
Volume to withdraw: $1050 \div 50 = 21 \text{ mL}$
Infusion: Dilute in 250 mL NS $\rightarrow$ total = 271 mL over 90 min
Rate: $271 \div 1.5 = 180.67 \text{ mL/hr}$
 Answer: 21 mL, 180.7 mL/hr

ChatGPT Response:

Vancomycin

Dose: $15 \times 70 = 1050$ mg

Available: 500 mg in 10 mL $\rightarrow$ 50 mg/mL

Volume: $1050 \div 50 = 21$ mL

Infusion rate: 250 mL over 90 min (1.5 hr); $250 \div 1.5 = 167$ mL/hr

Case A29

Prompt / Scenario:

Weight: 85 kg

Order: Heparin infusion 18 units/kg/hr

Available: 25,000 units in 500 mL

Find: infusion rate and total units delivered over 8 hours

Gemini Response:

Heparin Infusion

Hourly Dose: $85 \text{ kg} \times 18 \text{ units/kg/hr} = 1,530$ units/hr

Concentration: $25,000 \text{ units} \div 500 \text{ mL} = 50$ units/mL

Pump Rate: $1,530 \text{ units/hr} \div 50 \text{ units/mL} = 30.6$ mL/hr

Total Units over 8 Hours: $1,530 \text{ units/hr} \times 8 \text{ hr} = 12,240$ units

DeepSeek Response:

Heparin Infusion

Weight: 85 kg

Dose: $18 \text{ units/kg/hr} \rightarrow 85 \times 18 = 1530$ units/hr

Available: 25,000 units in 500 mL (concentration 50 units/mL)

Rate: $1530 \div 50 = 30.6$ mL/hr

Over 8 hours: $1530 \times 8 = 12,240$ units

✅ Answer: 30.6 mL/hr, 12,240 units

ChatGPT Response:

Heparin Infusion

Dose: $18 \times 85 = 1530$ units/hr

Concentration: 25,000 units in 500 mL = 50 units/mL

Rate: $1530 \div 50 = 30.6$ mL/hr

Total units in 8 hours: $1530 \times 8 = 12,240$ units

Case A30

Prompt / Scenario:

Weight: 110 kg

Order: Enoxaparin 1 mg/kg SC every 12 hours for 5 days

Available: 100 mg/mL

Find: volume per dose and total volume

Gemini Response:

Enoxaparin Therapy

Single Dose: $110 \text{ kg} \times 1 \text{ mg/kg} = 110 \text{ mg}$

Volume per Dose: $110 \text{ mg} \div 100 \text{ mg/mL} = 1.1 \text{ mL}$

Total Doses (q12h over 5 days): $2 \text{ doses/day} \times 5 \text{ days} = 10 \text{ doses}$

Total Volume: $1.1 \text{ mL/dose} \times 10 \text{ doses} = 11 \text{ mL}$

DeepSeek Response:

Enoxaparin Therapy

Weight: 110 kg

Dose: $1 \text{ mg/kg} \rightarrow 110 \text{ mg}$

Available: 100 mg/mL $\rightarrow$ volume per dose = $110 \div 100 = 1.1 \text{ mL}$

Every 12 hours for 5 days $\rightarrow$ 10 doses

Total volume: $1.1 \times 10 = 11 \text{ mL}$

 Answer: 1.1 mL, 11 mL

ChatGPT Response:

Enoxaparin

Dose per injection: $1 \times 110 = 110 \text{ mg}$

Available: 100 mg/mL; volume per dose: $110 \div 100 = 1.1 \text{ mL}$

Given every 12 hrs for 5 days = 10 doses

Total volume: $1.1 \times 10 = 11 \text{ mL}$