

Comprehensive Dosage Calculation Cases (Basic to Advanced)

This document contains all 90 medication dosage calculation cases, spanning Basic, Moderate, and Advanced levels. Numbering has been continuously formatted for clarity.

Basic Level Cases

Case B1

- **Weight:** 70 kg
- **Order:** Ceftriaxone 50 mg/kg IV once daily
- **Dose:** $70 \times 50 = 3500$ mg
- **Answer:** 3500 mg

Case B2

- **Weight:** 18 kg
- **Order:** Amoxicillin 25 mg/kg per dose
- **Dose:** $18 \times 25 = 450$ mg
- **Answer:** 450 mg

Case B3

- **Order:** Paracetamol 750 mg orally
- **Available:** 250 mg tablets
- **Tablets needed:** $750 \div 250 = 3$
- **Answer:** 3 tablets

Case B4

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

Case B5

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

Case B6

- **Order:** 500 mL over 4 hours
- **Rate:** $500 \div 4 = 125$ mL/hr
- **Answer:** 125 mL/hr

Case B7

- **Order:** 2 g Cefazolin IV
- **Available:** 1 g vials
- **Vials needed:** $2 \div 1 = 2$
- **Answer:** 2 vials

Case B8

- **Order:** 0.5 mg Atropine IV
- **Available:** 1 mg/mL
- **Volume:** $0.5 \div 1 = 0.5$ mL
- **Answer:** 0.5 mL

Case B9

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

Case B10

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

Case B11

- **Order:** 250 mg
- **Available:** 125 mg/5 mL (concentration 25 mg/mL)
- **Volume:** $250 \div 25 = 10$ mL
- **Answer:** 10 mL

Case B12

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

Case B13

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

Case B14

- **Order:** 80 mg
- **Available:** 40 mg tablets
- **Tablets:** $80 \div 40 = 2$
- **Answer:** 2 tablets

Case B15

- **Order:** 10 mg IV
- **Available:** 2 mg/mL
- **Volume:** $10 \div 2 = 5$ mL
- **Answer:** 5 mL

Case B16

- **Order:** 250 mcg
- **Available:** 125 mcg tablets
- **Tablets:** $250 \div 125 = 2$
- **Answer:** 2 tablets

Case B17

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

Case B18

- **Order:** 1000 mL over 10 hours
- **Rate:** $1000 \div 10 = 100$ mL/hr
- **Answer:** 100 mL/hr

Case B19

- **Order:** 50 mg
- **Available:** 25 mg tablets
- **Tablets:** $50 \div 25 = 2$
- **Answer:** 2 tablets

Case B20

- **Order:** 0.25 mg Digoxin
- **Available:** 0.125 mg tablets
- **Tablets:** $0.25 \div 0.125 = 2$
- **Answer:** 2 tablets

Case B21

- **Order:** Methylprednisolone 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

Case B22

- **Order:** Lorazepam (Ativan) 1 mg PO
- **Available:** 0.5 mg tablets
- **Tablets:** $1 \div 0.5 = 2$
- **Answer:** 2 tablets

Case B23

- **Order:** Acetaminophen liquid 650 mg qid
- **Available:** 160 mg/5 mL (concentration 32 mg/mL)
- **Volume per dose:** $650 \div 32 = 20.3$ mL
- **Answer:** 20.3 mL

Case B24

- **Order:** Codeine 45 mg IM
- **Available:** 60 mg/2 mL (concentration 30 mg/mL)
- **Volume:** $45 \div 30 = 1.5$ mL
- **Answer:** 1.5 mL

Case B25

- **Order:** Digoxin 0.25 mg PO
- **Available:** 0.125 mg tablets
- **Tablets:** $0.25 \div 0.125 = 2$
- **Answer:** 2 tablets

Case B26

- **Weight:** 150 lb $\rightarrow 150 \div 2.2 \approx 68.18$ kg
- **Order:** Hydromorphone (Dilaudid) 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

Case B27

- **Order:** Methadone 40 mg SC
- **Available:** 30 mg/mL
- **Volume:** $40 \div 30 = 1.333$ mL
- **Answer:** 1.33 mL

Case B28

- **Order:** Methadone oral solution 15 mg/day PO
- **Available:** 10 mg/5 mL (concentration 2 mg/mL)
- **Volume:** $15 \div 2 = 7.5$ mL
- **Answer:** 7.5 mL

Case B29

- **Order:** Nystatin 400,000 units PO every 4 hours
- **Available:** 100,000 units/5 mL (concentration 20,000 units/mL)
- **Volume:** $400,000 \div 20,000 = 20$ mL
- **Answer:** 20 mL (≈ 4 teaspoons)

Case B30

- **Order:** Heparin 12,000 units SC
- **Available:** 5000 units/mL
- **Volume:** $12,000 \div 5000 = 2.4$ mL
- **Answer:** 2.4 mL

Moderate Level Cases

Case M1

- **Weight:** 70 kg
- **Order:** Ceftriaxone 50 mg/kg IV once daily
- **Dose:** $70 \times 50 = 3500$ mg = 3.5 g
- **Available:** 1 g vial reconstituted to 10 mL (concentration 100 mg/mL)
- **Volume:** $3500 \div 100 = 35$ mL
- **Answer:** 3500 mg, 35 mL

Case M2

- **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

Case M3

- **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

Case M4

- **Weight:** 18 kg
- **Order:** Amoxicillin 25 mg/kg/dose
- **Dose:** $18 \times 25 = 450$ mg
- **Available:** 250 mg/5 mL (concentration 50 mg/mL)
- **Volume:** $450 \div 50 = 9$ mL
- **Answer:** 9 mL

Case M5

- **Weight:** 60 kg
- **Order:** Enoxaparin 1 mg/kg SC
- **Dose:** $60 \times 1 = 60$ mg
- **Available:** 100 mg/mL
- **Volume:** $60 \div 100 = 0.6$ mL
- **Answer:** 0.6 mL

Case M6

- **Weight:** 72 kg
- **Order:** Vancomycin 15 mg/kg IV
- **Dose:** $72 \times 15 = 1080$ mg
- **Available:** 500 mg vial reconstituted to 10 mL (concentration 50 mg/mL)
- **Volume:** $1080 \div 50 = 21.6$ mL
- **Answer:** 21.6 mL

Case M7

- **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 (concentration 100 mg/mL)
- **Volume:** $3600 \div 100 = 36$ mL

- **Answer:** 36 mL

Case M8

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

Case M9

- **Weight:** 15 kg
- **Order:** Cefotaxime 100 mg/kg/day divided twice daily
- **Daily dose:** $15 \times 100 = 1500$ mg/day; per dose = 750 mg
- **Available:** 1 g vial reconstituted to 10 mL (concentration 100 mg/mL)
- **Volume per dose:** $750 \div 100 = 7.5$ mL
- **Answer:** 7.5 mL

Case M10

- **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

Case M11

- **Weight:** 70 kg
- **Order:** Gentamicin 5 mg/kg IV once daily
- **Dose:** $70 \times 5 = 350$ mg
- **Available:** 80 mg/2 mL (concentration 40 mg/mL)
- **Volume:** $350 \div 40 = 8.75$ mL
- **Answer:** 8.75 mL

Case M12

- **Weight:** 85 kg
- **Order:** Norepinephrine 0.05 mcg/kg/min
- **Dose:** $85 \times 0.05 = 4.25$ mcg/min
- **Available:** 4 mg in 250 mL = 4000 mcg in 250 mL (concentration 16 mcg/mL)
- **Rate:** $(4.25 \div 16) \times 60 = 15.9375$ mL/hr
- **Answer:** 15.94 mL/hr

Case M13

- **Weight:** 20 kg
- **Order:** Ceftriaxone 75 mg/kg/day divided twice daily
- **Daily dose:** $20 \times 75 = 1500$ mg/day; per dose = 750 mg
- **Available:** 1 g reconstituted to 10 mL (concentration 100 mg/mL)
- **Volume per dose:** $750 \div 100 = 7.5$ mL
- **Answer:** 7.5 mL

Case M14

- **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 (concentration 1 unit/mL)
- **Rate:** $5 \div 1 = 5$ mL/hr
- **Answer:** 5 mL/hr

Case M15

- **Weight:** 95 kg
- **Order:** Morphine 0.1 mg/kg IV bolus
- **Dose:** $95 \times 0.1 = 9.5$ mg
- **Available:** 10 mg/mL
- **Volume:** $9.5 \div 10 = 0.95$ mL
- **Answer:** 0.95 mL

Case M16

- **Weight:** 68 kg
- **Order:** Furosemide 1 mg/kg IV
- **Dose:** $68 \times 1 = 68$ mg
- **Available:** 20 mg/2 mL (concentration 10 mg/mL)
- **Volume:** $68 \div 10 = 6.8$ mL
- **Answer:** 6.8 mL

Case M17

- **Weight:** 30 kg
- **Order:** Epinephrine 0.01 mg/kg IM
- **Dose:** $30 \times 0.01 = 0.3$ mg
- **Available:** 1 mg/mL
- **Volume:** $0.3 \div 1 = 0.3$ mL
- **Answer:** 0.3 mL

Case M18

- **Weight:** 110 kg
- **Order:** Heparin 15 units/kg/hr
- **Dose:** $110 \times 15 = 1650$ units/hr
- **Available:** 25,000 units in 500 mL (concentration 50 units/mL)
- **Rate:** $1650 \div 50 = 33$ mL/hr
- **Answer:** 33 mL/hr

Case M19

- **Weight:** 55 kg
- **Order:** Ketamine 2 mg/kg IV
- **Dose:** $55 \times 2 = 110$ mg
- **Available:** 50 mg/mL
- **Volume:** $110 \div 50 = 2.2$ mL
- **Answer:** 2.2 mL

Case M20

- **Weight:** 40 kg
- **Order:** Cefazolin 30 mg/kg IV
- **Dose:** $40 \times 30 = 1200$ mg
- **Available:** 1 g reconstituted to 10 mL (concentration 100 mg/mL)
- **Volume:** $1200 \div 100 = 12$ mL
- **Answer:** 12 mL

Case M21

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

Case M22

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

Case M23

- **Weight:** 20 kg
- **Order:** Amoxicillin 25 mg/kg/dose
- **Dose:** $20 \times 25 = 500$ mg

- **Available:** 250 mg/5 mL (concentration 50 mg/mL)
- **Volume:** $500 \div 50 = 10$ mL
- **Answer:** 10 mL

Case M24

- **Weight:** 85 kg
- **Order:** Heparin 18 units/kg/hr
- **Dose:** $85 \times 18 = 1530$ units/hr
- **Available:** 25,000 units in 500 mL (concentration 50 units/mL)
- **Rate:** $1530 \div 50 = 30.6$ mL/hr
- **Answer:** 30.6 mL/hr

Case M25

- **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:** 0.68 mL

Case M26

- **Weight:** 72 kg
- **Order:** Vancomycin 15 mg/kg IV
- **Dose:** $72 \times 15 = 1080$ mg
- **Available:** 1 g vial reconstituted to 20 mL (concentration 50 mg/mL)
- **Volume:** $1080 \div 50 = 21.6$ mL
- **Answer:** 21.6 mL

Case M27

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

Case M28

- **Weight:** 14 kg
- **Order:** Paracetamol 15 mg/kg per dose
- **Dose:** $14 \times 15 = 210$ mg
- **Available:** 120 mg/5 mL (concentration 24 mg/mL)
- **Volume:** $210 \div 24 = 8.75$ mL
- **Answer:** 8.75 mL

Case M29

- **Weight:** 82 kg
- **Order:** Dopamine 4 mcg/kg/min
- **Dose:** $82 \times 4 = 328$ mcg/min
- **Available:** 200 mg in 100 mL = 200,000 mcg in 100 mL (concentration 2000 mcg/mL)
- **Rate:** $(328 \div 2000) \times 60 = 9.84$ mL/hr
- **Answer:** 9.84 mL/hr

Case M30

- **Weight:** 88 kg
- **Order:** Amiodarone 5 mg/kg IV loading dose
- **Dose:** $88 \times 5 = 440$ mg
- **Available:** 150 mg in 3 mL (concentration 50 mg/mL)
- **Volume:** $440 \div 50 = 8.8$ mL
- **Answer:** 440 mg, 8.8 mL

Advanced Level Cases

Case A1: Ceftriaxone Scenario

- **Patient weight:** 60 kg
- **Dose:** 50 mg/kg $\rightarrow 60 \times 50 = 3000$ mg = 3 g
- **Available:** 1 g in 10 mL (concentration 100 mg/mL)
- **Volume to withdraw:** $3000 \div 100 = 30$ mL
- **Infusion:** Dilute in 100 mL NS $\rightarrow$ total volume = 130 mL over 30 min
- **Rate:** $130 \div 0.5 = 260$ mL/hr
- **Answer:** 30 mL, 260 mL/hr

Case A2: Amikacin Scenario

- **Weight:** 25 kg
- **Dose:** 15 mg/kg $\rightarrow 25 \times 15 = 375$ mg
- **Available:** 500 mg in 2 mL (concentration 250 mg/mL)
- **Volume to withdraw:** $375 \div 250 = 1.5$ mL
- **Infusion:** Dilute in 50 mL NS $\rightarrow$ total = 51.5 mL over 45 min
- **Rate:** $51.5 \div 0.75 = 68.67$ mL/hr
- **Answer:** 1.5 mL, 68.7 mL/hr

Case A3: 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 → total = 120 mL over 30 min
- **Rate:** $120 \div 0.5 = 240$ mL/hr
- **Answer:** 20 mL, 240 mL/hr

Case A4: Paracetamol IV Scenario

- **Weight:** 12 kg
- **Dose:** 15 mg/kg → $12 \times 15 = 180$ mg
- **Available:** 1 g in 100 mL (concentration 10 mg/mL)
- **Volume for dose:** $180 \div 10 = 18$ mL
- **Infusion:** Over 15 min → rate = $18 \div 0.25 = 72$ mL/hr
- **Answer:** 18 mL, 72 mL/hr

Case A5: Gentamicin Scenario

- **Weight:** 70 kg
- **Dose:** 5 mg/kg → $70 \times 5 = 350$ mg
- **Available:** 80 mg in 2 mL (concentration 40 mg/mL)
- **Volume to withdraw:** $350 \div 40 = 8.75$ mL
- **Infusion:** Dilute in 100 mL NS → total = 108.75 mL over 60 min
- **Rate:** $108.75 \div 1 = 108.75$ mL/hr
- **Answer:** 8.75 mL, 108.75 mL/hr

Case A6: Meropenem Scenario

- **Weight:** 50 kg
- **Dose:** 20 mg/kg → $50 \times 20 = 1000$ mg = 1 g
- **Available:** 1 g in 10 mL (concentration 100 mg/mL)
- **Volume to withdraw:** $1000 \div 100 = 10$ mL
- **Infusion:** Dilute in 100 mL NS → total = 110 mL over 30 min
- **Rate:** $110 \div 0.5 = 220$ mL/hr
- **Answer:** 10 mL, 220 mL/hr

Case A7: Acyclovir Scenario

- **Weight:** 18 kg
- **Dose:** 10 mg/kg → $18 \times 10 = 180$ mg
- **Available:** 250 mg in 10 mL (concentration 25 mg/mL)
- **Volume to withdraw:** $180 \div 25 = 7.2$ mL
- **Infusion:** Dilute in 50 mL NS → total = 57.2 mL over 60 min
- **Rate:** $57.2 \div 1 = 57.2$ mL/hr
- **Answer:** 7.2 mL, 57.2 mL/hr

Case A8: 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

Case A9: 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

Case A10: Dopamine Infusion Scenario

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

Case A11: Clindamycin Scenario

- **Weight:** 55 kg
- **Dose:** 10 mg/kg $\rightarrow 55 \times 10 = 550$ mg
- **Available:** 600 mg in 4 mL (concentration 150 mg/mL)
- **Volume to withdraw:** $550 \div 150 = 3.67$ mL
- **Infusion:** Dilute in 100 mL NS $\rightarrow$ total = 103.67 mL over 40 min
- **Rate:** $103.67 \div 0.6667 \approx 155.5$ mL/hr
- **Answer:** 3.67 mL, 155.5 mL/hr

Case A12: Cefotaxime Scenario

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

Case A13: Phenytoin Loading Dose Scenario

- **Weight:** 75 kg
- **Dose:** 15 mg/kg $\rightarrow 75 \times 15 = 1125$ 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 → total = 122.5 mL over 60 min
- **Rate:** $122.5 \div 1 = 122.5$ mL/hr
- **Answer:** 22.5 mL, 122.5 mL/hr

Case A14: Azithromycin Scenario

- **Weight:** 40 kg
- **Dose:** 10 mg/kg → $40 \times 10 = 400$ 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 → total = 104 mL over 60 min
- **Rate:** $104 \div 1 = 104$ mL/hr
- **Answer:** 4 mL, 104 mL/hr

Case A15: Norepinephrine Infusion Scenario

- **Weight:** 68 kg
- **Dose:** 0.1 mcg/kg/min → $68 \times 0.1 = 6.8$ mcg/min
- **Available:** 4 mg in 4 mL added to 250 mL D5W → total volume = 254 mL (4000 mcg)
- **Concentration:** $4000 \div 254 \approx 15.748$ mcg/mL
- **Rate:** $(6.8 \div 15.748) \times 60 \approx 25.91$ mL/hr
- **Answer:** 25.9 mL/hr

Case A16: Nitroprusside Infusion

- **Weight:** 80 kg
- **Dose:** 0.4 mcg/kg/min → $80 \times 0.4 = 32$ mcg/min
- **Available:** 50 mg in 250 mL (concentration 200 mcg/mL)
- **Rate:** $(32 \div 200) \times 60 = 9.6$ mL/hr
- **Answer:** 9.6 mL/hr

Case A17: Dopamine Reverse Calculation

- **Weight:** 70 kg
- **Bag:** 400 mg in 250 mL (concentration 1600 mcg/mL)
- **Pump rate:** 26 mL/hr → 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

Case A18: Dobutamine Infusion

- **Weight:** 75 kg
- **Dose:** 15 mcg/kg/min → $75 \times 15 = 1125$ mcg/min
- **Bag:** 500 mg in 250 mL (concentration 2000 mcg/mL)
- **Rate:** $(1125 \div 2000) \times 60 = 33.75$ mL/hr
- **Answer:** 33.75 mL/hr

Case A19: Amiodarone Infusion

- **Dose:** $0.5 \text{ mg/min} = 500 \text{ mcg/min}$
- **Bag:** 450 mg in 250 mL (concentration 1800 mcg/mL)
- **Rate:** $(500 \div 1800) \times 60 \approx 16.67 \text{ mL/hr}$
- **Answer:** 16.7 mL/hr

Case A20: 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

Case A21: Dobutamine Reverse Calculation

- **Weight:** 65 kg
- **Bag:** 500 mg in 250 mL (concentration 2000 mcg/mL)
- **Pump rate:** $30 \text{ mL/hr} \rightarrow \text{mcg/min} = (30 \times 2000) \div 60 = 1000 \text{ mcg/min}$
- **Per kg:** $1000 \div 65 \approx 15.38 \text{ mcg/kg/min}$
- **Answer:** 15.4 mcg/kg/min

Case A22: 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

Case A23: 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 = 1750 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

Case A24: Norepinephrine Titration

- **Weight:** 72 kg
- **Starting dose:** $0.05 \text{ mcg/kg/min} \rightarrow 72 \times 0.05 = 3.6 \text{ mcg/min}$
- **Max dose:** $0.15 \text{ mcg/kg/min} \rightarrow 72 \times 0.15 = 10.8 \text{ mcg/min}$
- **Available:** 4 mg in 250 mL (concentration 16 mcg/mL)
- **Starting rate:** $(3.6 \div 16) \times 60 = 13.5 \text{ mL/hr}$
- **Max rate:** $(10.8 \div 16) \times 60 = 40.5 \text{ mL/hr}$

- **Answer:** 13.5 mL/hr (start), 40.5 mL/hr (max)

Case A25: Dobutamine Fixed-Time Infusion

- **Weight:** 65 kg
- **Dose:** 5 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 total

Case A26: Magnesium Sulfate Loading Dose

- **Dose:** 4 g
- **Available:** 1 g per 10 mL $\rightarrow$ need $4 \times 10 = 40$ mL
- **Infusion:** Dilute in 100 mL $\rightarrow$ total = 140 mL over 30 min
- **Rate:** $140 \div 0.5 = 280$ mL/hr
- **Answer:** 40 mL, 280 mL/hr

Case A27: Potassium Chloride Infusion

- **Total volume:** 100 mL over 2 hours
- **Rate:** $100 \div 2 = 50$ mL/hr
- **Answer:** 50 mL/hr

Case A28: Vancomycin Infusion

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

Case A29: Heparin Infusion

- **Weight:** 85 kg
- **Dose:** 18 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 over 8 hr

Case A30: Enoxaparin Therapy

- **Weight:** 110 kg
- **Dose:** 1 mg/kg $\rightarrow 110$ mg

- **Available:** 100 mg/mL → volume per dose = $110 \div 100 = 1.1$ mL
- **Every 12 hours for 5 days:** → 10 doses
- **Total volume:** $1.1 \times 10 = 11$ mL
- **Answer:** 1.1 mL per dose, 11 mL total