FREE PRACTICE SET · 20 ORIGINAL PROBLEMS

Dose Calc Practice Set

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Show your units at every step and round only the final answer. This set rounds mL/hr to tenths and gtt/min to the nearest whole drop; if your program rounds differently, use its rule. Write whole numbers with no trailing zero (125 mL/hr, not 125.0 mL/hr). Answers with every step are on page 2.

> Practice problems with made-up orders and concentrations for math practice only. Follow the order, the label and facility protocol in real care.

1. Order: 0.25 mg PO. Available: 0.125 mg tablets. How many tablets?
2. Order: 750 mg PO. Available: 250 mg tablets. How many tablets?
3. Order: 40 mg PO. Available: oral solution 20 mg/5 mL. How many mL?
4. Order: 500 mg PO. Available: oral suspension 250 mg/5 mL. How many mL?
5. Infuse 1,000 mL over 8 hours. What is the rate in mL/hr? Round to tenths.
6. Infuse 500 mL over 6 hours. What is the rate in mL/hr? Round to tenths.
7. Infuse 100 mL of an IV antibiotic over 30 minutes. What is the rate in mL/hr? Round to tenths.
8. Infuse 1,000 mL over 8 hours. Drop factor: 15 gtt/mL. Rate in gtt/min? Round to the nearest whole drop.
9. Infuse 500 mL over 4 hours. Drop factor: 20 gtt/mL. Rate in gtt/min? Round to the nearest whole drop.
10. Infuse 250 mL over 2 hours. Drop factor: 10 gtt/mL. Rate in gtt/min? Round to the nearest whole drop.
11. Infuse 100 mL over 1 hour. Drop factor: 60 gtt/mL. Rate in gtt/min? Round to the nearest whole drop.
12. Order: 15 mg/kg PO. The patient weighs 22 lb (2.2 lb = 1 kg). How many mg?
13. Order: 5 mg/kg IV. The patient weighs 154 lb (2.2 lb = 1 kg). How many mg?
14. Order: 20 mg/kg/day divided every 8 hours. The patient weighs 30 kg. How many mg per dose?
15. Order: dopamine 5 mcg/kg/min IV. The patient weighs 70 kg. Available: 400 mg in 250 mL. Rate in mL/hr? Round to tenths.
16. Order: norepinephrine 0.1 mcg/kg/min IV. The patient weighs 80 kg. Available: 4 mg in 250 mL. Rate in mL/hr? Round to tenths.
17. Order: dobutamine 2.5 mcg/kg/min IV. The patient weighs 60 kg. Available: 250 mg in 250 mL. Rate in mL/hr? Round to tenths.
18. Order: heparin 1,000 units/hr IV. Available: 25,000 units in 500 mL. Rate in mL/hr? Round to tenths.
19. Order: heparin 18 units/kg/hr IV. The patient weighs 80 kg. Available: 25,000 units in 250 mL. Rate in mL/hr? Round to tenths.
20. Heparin 25,000 units in 500 mL is infusing at 22 mL/hr. How many units/hr is the patient receiving?

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ANSWER KEY · EVERY STEP WITH UNITS

Answers

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1. 0.25 mg × (1 tablet / 0.125 mg) = **2 tablets**
2. 750 mg × (1 tablet / 250 mg) = **3 tablets**
3. 40 mg × (5 mL / 20 mg) = **10 mL**
4. 500 mg × (5 mL / 250 mg) = **10 mL**
5. 1,000 mL ÷ 8 hr = **125 mL/hr**
6. 500 mL ÷ 6 hr = 83.33 mL/hr, rounds to **83.3 mL/hr**
7. (100 mL / 30 min) × (60 min / 1 hr) = **200 mL/hr**
8. 8 hr × (60 min / 1 hr) = 480 min;
   (1,000 mL / 480 min) × (15 gtt / 1 mL) = 31.25 gtt/min, rounds to **31 gtt/min**
9. 4 hr × (60 min / 1 hr) = 240 min;
   (500 mL / 240 min) × (20 gtt / 1 mL) = 41.67 gtt/min, rounds to **42 gtt/min**
10. 2 hr × (60 min / 1 hr) = 120 min;
    (250 mL / 120 min) × (10 gtt / 1 mL) = 20.83 gtt/min, rounds to **21 gtt/min**
11. 1 hr × (60 min / 1 hr) = 60 min; (100 mL / 60 min) × (60 gtt / 1 mL) = **100 gtt/min**
12. 22 lb × (1 kg / 2.2 lb) = 10 kg; 10 kg × 15 mg/kg = **150 mg**
13. 154 lb × (1 kg / 2.2 lb) = 70 kg; 70 kg × 5 mg/kg = **350 mg**
14. 30 kg × 20 mg/kg/day = 600 mg/day; 24 hr/day ÷ 8 hr/dose = 3 doses/day;
    600 mg/day ÷ 3 doses/day = **200 mg per dose**
15. 400 mg ÷ 250 mL = 1.6 mg/mL; 1.6 mg/mL × (1,000 mcg / 1 mg) = 1,600 mcg/mL;
    5 mcg/kg/min × 70 kg × (60 min / 1 hr) = 21,000 mcg/hr;
    21,000 mcg/hr × (1 mL / 1,600 mcg) = 13.125 mL/hr, rounds to **13.1 mL/hr**
16. 4 mg ÷ 250 mL = 0.016 mg/mL; 0.016 mg/mL × (1,000 mcg / 1 mg) = 16 mcg/mL;
    0.1 mcg/kg/min × 80 kg × (60 min / 1 hr) = 480 mcg/hr; 480 mcg/hr × (1 mL / 16 mcg) = **30 mL/hr**
17. 250 mg ÷ 250 mL = 1 mg/mL; 1 mg/mL × (1,000 mcg / 1 mg) = 1,000 mcg/mL;
    2.5 mcg/kg/min × 60 kg × (60 min / 1 hr) = 9,000 mcg/hr;
    9,000 mcg/hr × (1 mL / 1,000 mcg) = **9 mL/hr**
18. 25,000 units ÷ 500 mL = 50 units/mL; 1,000 units/hr × (1 mL / 50 units) = **20 mL/hr**
19. 18 units/kg/hr × 80 kg = 1,440 units/hr; 25,000 units ÷ 250 mL = 100 units/mL;
    1,440 units/hr × (1 mL / 100 units) = **14.4 mL/hr**
20. 25,000 units ÷ 500 mL = 50 units/mL; 22 mL/hr × (50 units / 1 mL) = **1,100 units/hr**

Formula check

Tablets or mL	dose ordered ÷ dose on hand × quantity (tablet or mL)
Concentration	drug amount ÷ total volume (convert mg to mcg when the order is in mcg)
mL/hr	total volume (mL) ÷ time (hr)
gtt/min	volume (mL) × drop factor (gtt/mL) ÷ time (min)
mcg/kg/min to mL/hr	dose (mcg/kg/min) × weight (kg) × 60 min/hr ÷ concentration (mcg/mL)
units/hr from a rate	rate (mL/hr) × concentration (units/mL)

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