

BEEBE HEALTHCARE
MARGARET H. ROLLINS SCHOOL OF NURSING
NURSING 101 - FOUNDATIONS OF NURSING

IV Calculations Worksheet (2)

Key

2021

Instructions: Calculate the IV rate as directed. The drop factor is 10 gtt/mL.

1. Order: 500 mL D5/NS over 8 hours. How many mL per hour will the IV infuse?

$$\frac{500 \text{ mL}}{8 \text{ hrs}} = 62.5 \text{ mL/hr} = 63 \text{ mL/hr}$$

2. Order: 1000 mL NS over 6 hours. Calculate the drip rate (gtt/min).

$$\frac{1000 \text{ mL}}{6 \text{ hr}} \times \frac{10 \text{ gtt}}{1 \text{ mL}} \times \frac{1 \text{ hr}}{60 \text{ min}} = \frac{10,000}{360} = 27.8 = 28 \text{ gtt/min}$$

3. Order: 1000 mL D5/NS over 10 hours. How many mL per hour will the IV infuse?

$$\frac{1000 \text{ mL}}{10 \text{ hrs}} = 100 \text{ mL/hr}$$

4. Order: 1000 mL D5/LR over 12 hours. Calculate the drip rate (gtt/min).

$$\frac{1000 \text{ mL}}{12 \text{ hrs}} \times \frac{10 \text{ gtt}}{1 \text{ mL}} \times \frac{1 \text{ hr}}{60 \text{ mins}} = \frac{10,000}{720} = 13.9 = 14 \text{ gtt/min}$$

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5. Order: 1000 mL D5 $\frac{1}{2}$ NS at 125 mL/hr. How many hours will this IV infuse?

$$\frac{1000 \text{ mL}}{125 \text{ mL}} \times 1 \text{ hr} = 8 \text{ hrs} \quad \text{OR} \quad \frac{1 \text{ hr}}{125 \text{ mL}} \times \frac{1000 \text{ mL}}{(x)} = \frac{1000}{125} = 8 \text{ hrs}$$

6. The physician orders 1000 mL D5 $\frac{1}{2}$ NS 100 mL/hr. How many hours will it take for the IV to infuse?

$$\frac{1000 \text{ mL}}{100 \text{ mL}} \times 1 \text{ hr} = 10 \text{ hrs} \quad \text{OR} \quad \frac{1 \text{ hr}}{100 \text{ mL}} \times 1000 \text{ mL} = 10 \text{ hrs}$$

7. Order: 500 mg Ampicillin in 100 mL NS to infuse over 30 minutes. Calculate the drip rate (gtt/min).

$$\frac{100 \text{ mL}}{30 \text{ min}} \times \frac{10 \text{ gtt}}{1 \text{ mL}} = \frac{1000}{30} = 33.3 = 33 \text{ gtt/min}$$

8. Order: 1 g Cephalexin in 50 mL to infuse over 30 minutes. Calculate the drip rate (gtt/min).

$$\frac{50 \text{ mL}}{30 \text{ min}} \times \frac{10 \text{ gtt}}{1 \text{ mL}} = \frac{500}{30} = 16.7 = 17 \text{ gtt/min}$$

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9. Order: Infuse 1,000 units/hr of Heparin. Available: 500 mL D5W with 40,000 units Heparin.

a. How many mL/hr will the ordered dose infuse?

$$\frac{500 \text{ mL}}{40,000 \text{ units}} \times \frac{1000 \text{ units}}{1 \text{ hr}} = \frac{500,000}{40,000} = 12.5 \text{ mL/hr} = 13 \text{ mL/hr}$$

b. The rate is changed to 15 mL/hr. How many units/hr are infusing?

$$\frac{40,000 \text{ units}}{500 \text{ mL}} \times \frac{15 \text{ mL}}{1 \text{ hr}} = \frac{600,000}{500} = 1200 \text{ units/hr}$$

10. Order: Infuse 5 units/hr of insulin. Available: 250 units insulin in 500 mL NS.

a. How many mL/hr will the ordered dose infuse?

$$\frac{500 \text{ mL}}{250 \text{ units}} \times \frac{5 \text{ units}}{1 \text{ hr}} = \frac{2500}{250} = 10 \text{ mL/hr}$$

b. The rate is changed to 6 mL/hr. How many units/hr are infusing?

$$\frac{250 \text{ units}}{500 \text{ mL}} \times \frac{6 \text{ mL}}{1 \text{ hr}} = \frac{1500}{500} = 3 \text{ units/hr}$$

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11. Order: Phenytoin 5 mg/kg/day. What is the total daily dosage for a patient who weighs 80 pounds?

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convert lb to kg $\rightarrow 80 \text{ lb} / 2.2 = 36.36 \text{ kg}$

$$5 \text{ mg} \times 36.36 \text{ kg} = 181.8 \text{ mg/day}$$

$$\text{or } \frac{5 \text{ mg}}{1 \text{ kg}} \times \frac{1 \text{ kg}}{2.2 \text{ lbs}} \times 80 \text{ lbs} = 181.8 \text{ mg/day}$$

12. Order: Ciprofloxacin 200 mg/100 mL to infuse at 100 mL/hr. How many mg/hr of Ciprofloxacin is infusing at this rate?

$$\frac{200 \text{ mg}}{100 \text{ mL}} \times \frac{100 \text{ mL}}{1 \text{ hr}} = \frac{20,000}{100} = 200 \text{ mg/hr}$$