

Answers to NUR 211 Review Math Problems

1. a.  $1000 \text{ ml} \times \frac{1 \text{ hr}}{82 \text{ ml}} = 12.2 \text{ hr}$

b.  $0.2 \text{ hr} \times \frac{60 \text{ min}}{1 \text{ hr}} = 12 \text{ min}$

answer: 12 hours and 12 minutes = 2:12 AM

2. a.  $\frac{1000 \text{ ml}}{16 \text{ hr}} = 62.5 \text{ ml/hr}$

b.  $400 \text{ ml} \times \frac{1 \text{ hr}}{62.5 \text{ ml}} = 6.4 \text{ hr}$

c.  $0.4 \text{ hr} \times \frac{60 \text{ min}}{1 \text{ hr}} = 24 \text{ min}$

answer: 6 hours and 24 minutes = 10:24 PM

3. a.  $\frac{20 \text{ gtts}}{1 \text{ min}} \times \frac{1 \text{ ml}}{15 \text{ gtts}} = \frac{1.3 \text{ ml}}{\text{min}}$

b.  $\frac{1.3 \text{ ml}}{\text{min}} \times \frac{60 \text{ min}}{\text{hr}} = \frac{78 \text{ ml}}{\text{hr}}$

answer:  $\frac{78 \text{ ml}}{\text{hr}}$

4.  $\frac{100 \text{ ml}}{30 \text{ min}} \times \frac{15 \text{ gtts}}{1 \text{ ml}} = \frac{50 \text{ gtts}}{\text{min}}$

5. a. Demerol -  $50 \text{ mg} \times \frac{1 \text{ ml}}{75 \text{ mg}} = 0.7 \text{ ml}$

b. Vistaril  $35 \text{ mg} \times \frac{1 \text{ ml}}{50 \text{ mg}} = 0.7 \text{ ml}$

answer: total volume  $0.7 \text{ ml} + 0.7 \text{ ml} = 1.4 \text{ ml}$

6. Intake =

IV  $425 \text{ ml (1}^{\text{st}} \text{ IV)} + 575 \text{ (2}^{\text{nd}} \text{ IV)} + 200 \text{ ml (IVPB)}$

Meals  $240 \text{ ml (milk)} + 240 \text{ ml (coffee)} + 480 \text{ ml (Iced Tea)} + 120 \text{ ml (sherbet)}$

Meds  $180 \times 2 = 360 \text{ ml}$

Output =

Vomited  $225 \text{ ml}$

Urine  $350 \text{ ml} + 275 \text{ ml} + 125 \text{ ml} + 250 \text{ ml}$

Total intake = 2640

Total output = 1225 ml

7.  $350 \text{ ml} \times \frac{1 \text{ hr}}{75 \text{ ml}} = 4.7 \text{ hr}$

$0.7 \text{ hr} = 42 \text{ min}$

Answer: 7:42 PM

8.  $\frac{1000 \text{ ml}}{10} = \frac{100 \text{ ml}}{1}$

10 hrs      hr

$$9. \frac{100 \text{ ml}}{\text{hr}} \times \frac{60 \text{ gtts}}{\text{ml}} \times \frac{1 \text{ hr}}{60 \text{ min}} = \frac{100 \text{ gtts}}{\text{min}}$$

$$10. 3000 \text{ ml} \times \frac{1 \text{ hr}}{75 \text{ ml}} = 40 \text{ hours}$$

$$11. \frac{1000 \text{ ml}}{9 \text{ hrs}} \times \frac{10 \text{ gtts}}{1 \text{ ml}} \times \frac{1 \text{ hr}}{60 \text{ min}} = \frac{18.5 \text{ gtts}}{\text{min}} = \frac{19 \text{ gtts}}{\text{min}}$$

12. a.  $\frac{1000 \text{ ml}}{4 \text{ hrs}} = \frac{250 \text{ ml}}{\text{hr}}$  therefore, 1.5 hrs later (4:30 PM) 375 ml infused

b.  $1000 \text{ ml} - 375 \text{ ml} = 625 \text{ ml}$  remaining to infuse at 42 ml/hr

c.  $625 \text{ ml} \times \frac{1 \text{ hr}}{42 \text{ ml}} = 14.88 \text{ hrs}$        $0.9 \text{ hr} = 54 \text{ min}$       7:24 PM the next day

$$13. \frac{750 \text{ ml}}{5 \text{ hrs}} = 150 \text{ ml/hr}$$

14. a.  $\frac{1000 \text{ ml}}{12 \text{ hrs}} = 83.3 \text{ ml/hr}$  therefore 750 ml should have infused (83.3 ml x 9 hrs)

leaving 250 ml, since 500 ml remains, the rate needs to be readjusted.

b.  $\frac{500 \text{ ml}}{3 \text{ hr (from remaining 3 hrs)}} = 167 \text{ ml/hr}$  to finish on time.

c.  $\frac{167 \text{ ml}}{\text{hr}} \times \frac{15 \text{ gtts}}{\text{ml}} \times \frac{1 \text{ hr}}{60 \text{ min}} = \frac{41.75 \text{ gtts}}{\text{min}}$       42 gtts/min

You can only readjust rate within 10% of prescribed rate, therefore, you would need to re-time tape the IV at the rate of 83 ml/hr.

$$15. 1000 \text{ ml} \times \frac{1 \text{ hr}}{63 \text{ ml}} = 15.9 \text{ hr}$$