Review for 1124 Essentials of Medication Administration

Completion
Complete each statement.

1. A client has been taking warfarin 5 mg daily. After a check of the client's INR, the health care provider wants to increase the client's dose to 7.5 mg on Wednesdays and continue 5 mg all the other six days. The client has warfarin 5-mg tablets on hand. The nurse would instruct the client to take _____ tablets on Wednesdays.

2. A health care provider writes an order for a client to receive levothyroxine 0.2 mg, but 100-mcg tablets are supplied. The nurse would administer _____ tablets to the client.

3. A client weighs 56 kg. The client weighs _____ pounds.

4. The nurse is checking the dosage of a drug ordered in mg/kg. A client weighs 275 lb. The client weighs_____ kilograms.

5. A client has a temperature of 39°C. The client's temperature is _____ degrees Fahrenheit.

6. When assessing a client's temperature, the nurse finds it to be 99°F. The client's temperature is _____ degrees Celsius.

7. Amoxicillin 250 mg is ordered for a child. The pharmacy supplies the drug in a suspension form. The label reads 500 mg/5 mL. The nurse would administer _____ mL.

8. A client is to receive 0.5 mg of a drug parenterally. The drug is available in a 2-mg/mL vial. The nurse would administer _____ mL.

9. A client is to receive a 7.5-mg/kg dose of a drug. The client weighs 155 lb. The client would receive _____ mg per dose.

10. The health care provider writes an order for a client to receive 1 mg of vitamin B_{12} once every month. Vitamin B_{12} comes in a 1000-mcg/mL vial. The nurse would administer _____ mL to the client each month.

11. A client is to receive 250 mg of penicillin VK twice daily for 10 days. Penicillin VK is available in a 500-mg tablet. The nurse would instruct the client to take _____ tablet(s) at each dose.

12. A client weighs 200 lb. The client is to receive 5 mg/kg per dose of drug. The client will receive _____ mg of the drug in each dose.

Change to the designated equivalents. Do not round answers. Use commas for all answers that are 1,000 or above. Remember to place a zero (0) in front of any answer that is less than 1 (e.g., 0.5). All numerical answers should use the decimal system (e.g., use 0.5 not ½).

13. 76 mg = _____ mcg

14. 17.4 kg = _____ g

15. 112.2 lb = _____ kg

Insert the correct response. Round to the nearest hundredth if the dose is less than 1 mL. Round to the nearest tenth if the dose is greater than 1 mL. Include appropriate labeling with each numerical answer. Examples of appropriate labeling of numerical answers are tablets, capsules, mL, mL/h, gtt/min, and units.

16. The physician orders Recombivax HB 10 mcg IM for hepatitis B vaccination. The medication is supplied in 5 mcg/0.5 mL. How many milliliters will the nurse administer? _____

17. The physician orders Methergine 0.3 mg IM for postpartum bleeding. The medication is supplied in 0.2 mg/mL. How many milliliters will the nurse administer? _____

18. The physician orders Stadol 2 mg IM for pain. The medication is supplied in 1 mg/mL. How many milliliters will the nurse administer? _____

19. Arixtra 2.5 mg subcutaneous every morning is ordered for prevention of deep vein thrombosis. The Arixtra is available in 5 mg per 0.4-mL vials. How many milliliters would the nurse administer with each dose? _____

20. A patient with renal failure has Lasix 40 mg intravenous ordered. The medication is available in a 10 mg/mL concentration. How many milliliters should the nurse administer with each dose? _____

21. A patient has an order for metoclopramide 5 mg IV every 6 hours for a patient with high gastric residuals. Using a vial with a 10 mg/mL concentration, how many milliliters would be administered with each dose? _____

Insert the correct response. Round to the nearest hundredth if the dose is less than 1 mL. Round to the nearest tenth if the dose is greater than 1 mL. Include appropriate labeling with each numerical answer. Examples of appropriate labeling of numerical answers are tablets, capsules, mL, mL/h, gtt/min, and units.

22. The physician orders Lorabid 350 mg po for pneumonia. After reconstitution, the medication is available as 200 mg/5 mL. How many milliliters will the nurse administer?

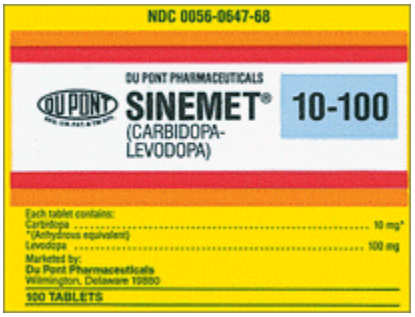
23. The physician orders Ceclor 175 mg po for an ear infection. After reconstitution, the medication is available as 125 mg/5 mL. How many milliliters will the nurse administer?

24. The physician orders Ampicillin 150 mg IM for a systemic infection. After reconstitution, the medication is available as 125 mg/mL. How many milliliters will the nurse administer?

25. Ampicillin sodium (Omnipen) 250 mg in 50 mL of normal saline (NS) is being administered over a period of 30 minutes. The drop (gt) factor is 10 drops (gtt) per mL. The nurse is asked to check the flow rate of the infusion. The nurse determines that the infusion is running at the prescribed rate if the infusion is delivering how many gtt per minute? (Round answer to the nearest whole number.)

26. A physician prescribes 1000 mL of normal saline (NS) to be infused over a period of 10 hours. The drop (gt) factor is 15 drops (gtt) per mL. The nurse adjusts the flow rate at how many gtt per minute?

Short Answer



Used with permission of Abbott Laboratories.

27. What is the trade name on this label?

Label provided with the permission of the Glaxo Smith Kline group of companies.

28. Using this label, indicate the number of tablets or capsules required to administer the ordered dose. Assume all tablets are scored.

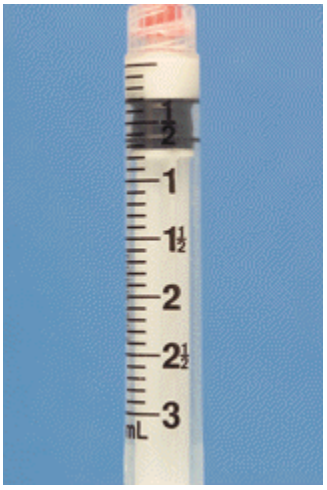
    Order: Thorazine 50 mg

29. Using the following label, indicate the number of tablets or capsules required to administer the ordered dose. Assume all tablets are scored.

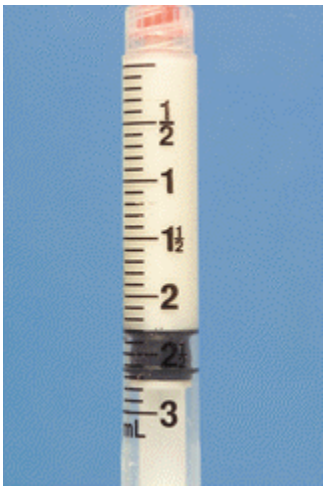
Used with permission from Pfizer Inc.

Order: Aldactone 75 mg

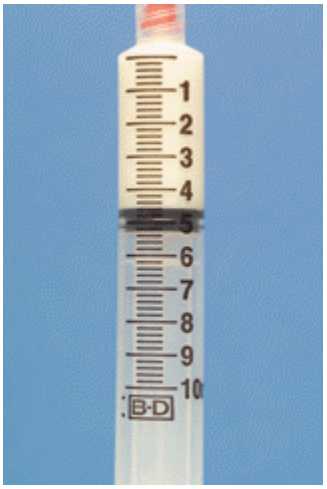
30. Identify the dosage measured on the syringe.



31. Identify the dosage measured on the syringe.



32. Identify the dosage measured on the syringe.



Problem

The drug label indicates that the recommended dosage for adults and children over 6 years of age is 250 mg/kg 3 times daily. For infants, the recommended dosage is 140-170 mg/kg 3 times daily.

33. An adult weighs 160 lbs. What is the recommended per dose dosage for this patient?

34. An infant weighs 14.3 lbs. What is the lower per dose dosage for this infant?

35. An infant weighs 14.3 lbs. What is the higher per dose dosage for this infant?

36. A 7-year-old child weighs 28 kg. What is the recommended 24-hour dosage for this child?

37. The order for this child is to give 6000 mg every 6 hours. Is this an acceptable and safe dose?

    The drug label reads: 300-450 mcg/kg/day in 3 divided doses.

38. The prescriber orders “8 mg every 8 hours” for a patient weighing 154 lb. Is this within the recommended range?

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 39. A physician orders 1000 mL of 0.9% normal saline (NS) to run over 8 hours. The drop (gt) factor is 10 drops (gtt) per 1 mL. The nurse adjusts the flow rate to run at how many gtt per minute?
A) 15 gtt/minute
B) 17 gtt/minute
C) 21 gtt/minute
D) 23 gtt/minute

Review for 1124 Essentials of Medication Administration
Answer Section

COMPLETION

1. ANS:
   1.5 tablets
   Feedback: The basic formula method for calculating dosages is taking the dose desired divided by the dose on hand. This will give the dose to be administered: 7.5 mg/5 mg = 1.5 tablets

   PTS: 1 DIF: Moderate
   REF: Header: Basic Formula Method of Dosage Calculation | Page: 36
   OBJ: 4 NAT: Client Needs: Physiological Integrity: Pharmacological Therapies
   TOP: Chapter 3
   KEY: Integrated Process: Clinical Problem-solving Process (Nursing Process)
   MSC: Cognitive Level: Analyze
2. ANS:
   Two tablets
   Feedback: 1000 mcg/1 mg = 100 mcg/X mg
   X = 100/1000
   X = 0.1 mg
   0.2 mg/0.1 mg = 2

   PTS: 1 DIF: Difficult
   REF: Header: Ratio and Proportion Method by Hand | Page: 37 OBJ: 4
   NAT: Client Needs: Physiological Integrity: Pharmacological Therapies
   TOP: Chapter 3
   KEY: Integrated Process: Clinical Problem-solving Process (Nursing Process)
   MSC: Cognitive Level: Analyze
3. ANS:
   123.2 lb
   Feedback: Kilograms must be converted to pounds using the conversion factor of 2.2 pounds in 1 kg. Therefore, $56 \times 2.2 = 123.2$.

   PTS: 1 DIF: Moderate
   REF: Header: Drug Dosages Based on Weight | Page: 41 OBJ: 3
   NAT: Client Needs: Safe and Effective Care Environment: Safety and Infection Control
   TOP: Chapter 3
   KEY: Integrated Process: Clinical Problem-solving Process (Nursing Process)
   MSC: Cognitive Level: Analyze
4. ANS:
   125 kg
   Feedback: Pounds must be converted to kilograms using the conversion factor of 2.2 lb in 1 kg. Therefore, 275/2.2 = 125.

PTS: 1 DIF: Moderate
REF: Header: Drug Dosages Based on Weight | Page: 41 OBJ: 3
NAT: Client Needs: Safe and Effective Care Environment: Safety and Infection Control
TOP: Chapter 3
KEY: Integrated Process: Clinical Problem-solving Process (Nursing Process)
MSC: Cognitive Level: Analyze

5. ANS:
102.2°F
Feedback: To convert from Celsius to Fahrenheit, the formula F = 9/5 C + 32 is used. Therefore, $9/5 \times 39 = 70.2$.
$70.2 + 32 = 102.2$

PTS: 1 DIF: Moderate REF: Header: Temperatures | Page: 42
OBJ: 4
NAT: Client Needs: Safe and Effective Care Environment: Safety and Infection Control
TOP: Chapter 3
KEY: Integrated Process: Clinical Problem-solving Process (Nursing Process)
MSC: Cognitive Level: Analyze

6. ANS:
37.2°C
Feedback: To convert Fahrenheit to Celsius, the formula C = 5/9 (F – 32) is used. Therefore, 99 – 32 = 67.
$67 \times 5/9 = 37.2$

PTS: 1 DIF: Moderate REF: Header: Temperatures | Page: 42
OBJ: 4
NAT: Client Needs: Safe and Effective Care Environment: Safety and Infection Control
TOP: Chapter 3
KEY: Integrated Process: Clinical Problem-solving Process (Nursing Process)
MSC: Cognitive Level: Analyze

7. ANS:
2.5 mL
Feedback: 500 mg/5 mL = 250 mg/X mL
500 X = 1250
X = 2.5

PTS: 1 DIF: Moderate
REF: Header: Dose Calculations With Liquids | Page: 38 OBJ: 4
NAT: Client Needs: Physiological Integrity: Pharmacological Therapies
TOP: Chapter 3
KEY: Integrated Process: Clinical Problem-solving Process (Nursing Process)
MSC: Cognitive Level: Analyze

8. ANS:
0.25 mL
Feedback: 0.5 mg × 1 mL/2 mg = 0.25 mL.

PTS: 1 DIF: Difficult
REF: Header: Parenteral Drugs in Ampules and Vials | Page: 39
OBJ: 4 NAT: Client Needs: Physiological Integrity: Pharmacological Therapies
TOP: Chapter 3
KEY: Integrated Process: Clinical Problem-solving Process (Nursing Process)
MSC: Cognitive Level: Analyze

9. ANS:
528.4 mg
Feedback: First, the client's weight needs to be converted to kilograms. 155 lb × 1 kg/2.2 lb = 70.5 kg. Then the drug dosage is calculated as follows: 70.5 kg × 7.5 mg/kg = 528.4 mg.

PTS: 1 DIF: Moderate
REF: Header: Drug Dosages Based on Weight | Page: 41 OBJ: 4
NAT: Client Needs: Physiological Integrity: Pharmacological Therapies
TOP: Chapter 3
KEY: Integrated Process: Clinical Problem-solving Process (Nursing Process)
MSC: Cognitive Level: Analyze

10. ANS:
1 mL
Feedback: First, the nurse needs to convert the milligrams to micrograms. Therefore, 1 mg = 1000 mcg. Since there is 1000 mcg/mL, the nurse would give 1 mL.

PTS: 1 DIF: Moderate
REF: Header: Understanding the Metric System of Measurement | Page: 37
OBJ: 4 NAT: Client Needs: Physiological Integrity: Pharmacological Therapies
TOP: Chapter 3
KEY: Integrated Process: Clinical Problem-solving Process (Nursing Process)
MSC: Cognitive Level: Analyze

11. ANS:
1/2 tablet
Feedback: 250 mg/500 mg = 0.5 tablets.

PTS: 1 DIF: Easy
REF: Header: Basic Formula Method of Dosage Calculation | Page: 36
OBJ: 4 NAT: Client Needs: Physiological Integrity: Pharmacological Therapies
TOP: Chapter 3
KEY: Integrated Process: Clinical Problem-solving Process (Nursing Process)
MSC: Cognitive Level: Analyze

12. ANS:
454.5 mg/dose
Feedback: First, the client's weight must be converted to kilograms: 200 lb × 1 kg/2.2 lb = 90.9 kg. Then the dosage is calculated: 90.9 kg × 5 mg/kg = 454.5 mg.

PTS: 1 DIF: Moderate
REF: Header: Drug Dosages Based on Weight | Page: 41 OBJ: 4
NAT: Client Needs: Physiological Integrity: Pharmacological Therapies

TOP: Chapter 3
KEY: Integrated Process: Clinical Problem-solving Process (Nursing Process)
MSC: Cognitive Level: Analyze

13. ANS: 76,000

PTS: 1

14. ANS: 17,400

PTS: 1

15. ANS: 51

PTS: 1

16. ANS: 1 mL

PTS: 1

17. ANS: 1.5 mL

PTS: 1

18. ANS: 2 mL

PTS: 1

19. ANS: 0.2 mL

PTS: 1

20. ANS: 4 mL

PTS: 1

21. ANS: 0.5 mL

PTS: 1

22. ANS: 8.6 mL

PTS: 1

23. ANS: 7 mL

PTS: 1

24. ANS: 1.2 mL

PTS: 1

25. ANS:
17 gtt/minute
Rationale: The prescribed 50 mL is to be infused over 30 minutes. Follow the formula and multiply 50 mL by 10 (gt factor). Then divide the result by 30 minutes. Round answer to the nearest whole number. The infusion is to run at 17 gtt/minute.

Formula:

$$\frac{\text{Total volume in mL} \times \text{gt factor}}{\text{Time in minutes}} = \text{Flow rate in gtt per minute}$$

$$\frac{50 \text{ mL} \times 10 \text{ gtt}}{30 \text{ minutes}} = \frac{500}{30} = 16.6 \text{ or } 17 \text{ gtt/minute}$$

Test-Taking Strategy: Follow the formula for calculating the infusion rate for an intravenous (IV) infusion. Then verify your answer using a calculator. Remember to round the answer to the nearest whole number. Review the formula for calculating infusion rates if you had difficulty with this question.

PTS: 1 DIF: Level of Cognitive Ability: Application
REF: Kee, J., & Marshall, S. (2009). Clinical calculations: With applications to general and specialty areas (6th ed.). Philadelphia: Saunders.
OBJ: Client Needs: Physiological Integrity
TOP: Content Area: Fundamental Skills
MSC: Integrated Process: Nursing Process/Implementation

26. ANS:
25 gtt per minute
Rationale: The prescribed 1000 mL is to be infused over 10 hours. Follow the formula and multiply 1000 mL by 15 (gt factor). Then divide the result by 600 minutes (10 hours × 60 minutes). The infusion is to run at 25 gtt/minute.

Formula:

$$\frac{\text{Total volume in mL} \times \text{gt factor}}{\text{Time in minutes}} = \text{Flow rate in gtt per minute}$$

$$\frac{1000 \text{ mL} \times 15 \text{ gtt}}{600 \text{ minutes}} = \frac{15{,}000}{600} = 25 \text{ gtt/minute}$$

Test-Taking Strategy: Follow the formula for calculating the infusion rate for an intravenous (IV) infusion. Be sure to convert 10 hours to minutes, and then verify your answer using a calculator. Review the formula for calculating infusion rates if you had difficulty with this question.

PTS: 1 DIF: Level of Cognitive Ability: Application
REF: Kee, J., & Marshall, S. (2009). Clinical calculations: With applications to general and specialty areas (6th ed.). Philadelphia: Saunders.
OBJ: Client Needs: Physiological Integrity
TOP: Content Area: Fundamental Skills
MSC: Integrated Process: Nursing Process/Implementation

SHORT ANSWER

27. ANS:
Sinemet

PTS: 1

28. ANS:
1/2 tablet
1/2

PTS: 1

29. ANS:
1-1/2 tablets
1 1/2 tablets
1-1/2
1.5

PTS: 1

30. ANS:
0.3 mL

PTS: 1

31. ANS:
2.3 mL

PTS: 1

32. ANS:
4.6 mL

PTS: 1

PROBLEM

33. ANS:
73 kg

$$\frac{160lb}{2.2} = 72.7 = 73kg$$

$$73kg \times 250mg = 18250mg$$

PTS: 1

34. ANS:
910 mg

$$\frac{14.3lb}{2.2} = 6.5kg$$

$$6.5 \times 140mg = 910mg$$

PTS: 1

35. ANS:
1105 mg

$6.5kg \times 170mg = 1105mg$

PTS: 1

36. ANS:
21,000 mg/day

$250 \times 28 = 7000mg \times 3\,doses = 21,000mg/day$

PTS: 1

37. ANS:
No. The recommended dosing is 3 times per day and every 6 hours is 4 times per day dosing. Call prescriber to amend order.

PTS: 1

38. ANS:
Yes, the ordered dose is within the recommended range.

$70kg \times 300mcg = 21000mcg \div 1000 = 21mg/day \div 3\,doses = 7mg/dose$

$70kg \times 450mcg = 31500mcg \div 1000 = 31.5mg/day \div 3\,doses = 10.5mg/dose$

PTS: 1

MULTIPLE CHOICE

39. ANS: C
Rationale: The prescribed 1000 mL is to be infused over 8 hours. Follow the formula and multiply 1000 mL by 10 (gt factor). Then divide the result by 480 minutes (8 hours × 60 minutes). The infusion is to run at 20.8 or 21 gtt/minute.

Formula:

$$\frac{\text{Total volume in mL} \times \text{gt factor}}{\text{Time in minutes}} = \text{Flow rate in gtt per minute}$$

$$\frac{1000\text{ mL} \times 10\text{ gtt}}{480\text{ minutes}} = \frac{10{,}000}{480} = 20.8 \text{ or } 21 \text{ gtt/minute}$$

Test-Taking Strategy: Follow the formula for calculating the infusion rate for an intravenous infusion. Be sure to convert 8 hours to minutes and then verify your answer using a calculator. Review the formula for calculating infusion rates if you had difficulty with this question.

PTS: 1 DIF: Level of Cognitive Ability: Application

REF: Kee, J., & Marshall, S. (2009). Clinical calculations: With applications to general and specialty areas (6th ed.). Philadelphia: Saunders.
OBJ: Client Needs: Physiological Integrity
TOP: Content Area: Fundamental Skills
MSC: Integrated Process: Nursing Process/Implementation