B. A 16 kg male is hospitalized following surgery. Calculate the maintenance IV rate:

16 kg = 10 kg + 6 kg
[100 mL x 10 kg] + [50 mL x 6] =
1000 mL + 300 mL =

Answer: 1300 mL/24 hours or 54.16 mL/hr = 54.2 mL/hr

Practice Questions

1. Round to the **nearest tenth**: 2.35 =___
2. 10 kg = _____ lb
3. 4.6 lb = _____ kg
4. 3.523 kg =_____ g
5. 1586 g =_____ kg
6. An IV medication is to be given every 8 hours. You gave the first dose at 0700. When is the next dose given?
7. A 3-year-old child who is 27 lbs is to receive Amoxicillin 180 mg every 8 hours by mouth. The safe dose recommendation is 20 mg/kg/day in divided doses every 8 hours. You should
   a. Hold the dose
   b. Give the dose
8. A 9 month-old-infant is to receive a bolus of 0.9 normal saline 100 mLs to be infused over 6 hours. You should program the hourly rate on the pump, at: ____ .
9. A 7-year-old has an order for phenobarbital 80 mg two times per day. Phenobarbital comes in a concentration of 20 mg per 5 mL. How many mLs will you give?
10. A 2-year-old weighs 11 kg. The IV D5 LR to run at _____ mL/hr. Calculate the maintenance IV rate using the standard formula for calculation.

Please note: The Children's Medication Safety Plan Policy does not permit trailing zeroes or the lack of leading zeroes.
Examples:

- 2.50 mL must be written as **2.5 mL**
- .1 mL must be written as **0.1 mL**

References

Brown, M & Mulholland, J.M. (2004). Drug calculations: Process and problems for clinical practice, (7th ed.). St. Louis, MO: Mosby.

Siberry, G.K., & Iannone, R., eds., (2000). The Harriet Lane handbook, [15th edition]. St. Louis, MO: Mosby-Yearbook, Inc.

Wong. D.L.(1999). Whaley and Wong's nursing care of infants and children. St. Louis, MO: Mosby.

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1. 2.4
2. 22 lb
3. 2.1 kg
4. 3523 g
5. 1.6 kg
6. 1500
7. (a) Slight overdose. Hold the dose and clarify promptly.
8. 16.7 mL/hr
9. 20 mL
10. 1050 mL/24 hours or 43.8 mL/hr

600/10-05
3862

Medication Administration

Guidelines and Examples for Exam

Dear Applicant:

Prior to hire, Children's provides all applicants with guidelines to our required medication administration exam. This examination is used as a screening tool to ensure safe medication administration. You will need to complete a 25-item, paper-and-pencil exam and achieve a score of 88% or higher to be eligible for employment. The exam consists of the following examples:

Simple Conversions/Ratios

A. Round to the nearest tenth. Examples:
1.69 = 1.7
6.45 = 6.5
2.22 = 2.2

B. Convert pounds to kilograms (round to the nearest tenth). Example:
85 lb = _____kg
[Conversion 1 kg = 2.2 lb]

Known	Want to know
85 lb	X kg

2.2 lb / 1 kg = 85 lb/X kg
Answer: X = 38.63 kg = 38.6 kg

C. Convert kilograms to pounds (round to the nearest tenth). Example:
32 kg = _____ lb

Known	Want to know
32 kg	X lb

1 kg/2.2 lb = 32 kg/X lb
Answer: X = 70.4 lb

D. Convert kilograms to grams. Example:
6.673 kg = _____ g
[Conversion 1000 g = 1 kg]

Known	Want to know
6.673 kg	X g

1000 g/1kg = X g/6.673 kg
Answer: X = 6673 g

E. Convert grams to kilograms (round to the nearest tenth). Example:
2356 g = _____kg

Known	Want to know
2356 g	X kg

1000 g/1 kg = 2356 g/X kg
2356 g /1000 g
Answer: X = 2.356 kg = 2.4 kg

Safe Medication Administration

A. Using a 24 hour clock/military time: An IV medication is to be given every 6 hours, you gave the first dose at 1400, when is the next dose given?
Answer: 2000

B. A 5-year-old is to receive Acetaminophen Elixir every 4 hours as needed. The first dose was given at 1500; what time might the next dose be given?
Answer: 1900

Calculation of Dosages (round to nearest tenth)

A. A 6-year-old child weighing 27 kg is to receive Methylprednisolone 4 mg IV every 6 hours. The drug is available in 40 mg per mL vial. How many mL will you administer?

Determine dose:

Known	Want to know
X mL = X mL/4 mg = 1 mL/40 mg	

Answer: X = 0.1 mL

B. A 7-year-old child is to receive a bolus of 200 mLs of IV fluid over 6 hours. What should the IV hourly rate on the pump be programmed for?

Known	Want to know
X hr = X mL/1 hr = 200 mL/6 hr	

Answer: 33.33 mL/hr = 33.3 mL/hr

Label/Dosage Calculation (round to nearest tenth)

A. You are to give Ampicillin 80 mg IV every 6 hours. The label reads that the medication when reconstituted contains 250 mg per mL. How many mLs should you administer?

Have	Want to have
250 mg : 1 mL ::	80 mg : X mL
250 X =	80/250 mL

Answer : X = 0.32 mL = 0.3 mL

Calculation of IV Maintenance Dosages (round to nearest tenth)

Use the standard formula for calculation after obtaining child's weight in kilograms (see below):

- For children 0-10 kg, **use 100 mL x child's weight in kg in 24 hours**
- For children 10.01- 20 kg, **use 1000 mL + additional 50 mL per kg over 10 kg in 24 hours**
- For children over 20 kg, **use 1500 mL + additional 20 mL per kg over 20 kg in 24 hours**

A. A 5-year-old weighing 25 kg. Calculate the maintenance IV hourly rate.
10 kg + 10 kg + 5 kg = 25 kg
[100 mL x 10 kg] + [50 mL x 10] + [20 mL x 5]
1000 mL + 500mL + 100 mL =
Answer: 1600 mL/24 hours = 66.66 = 66.7 mL/hr