Pediatric Med Math practice scenarios #2 Key

1. A 5-year-old child weighing 20 kg has an order for Acetaminophen liquid 80mg po PRN every 4 hours for a temperature >101. The child's temperature is 101.3. On hand is Acetaminophen liquid 160mg/5ml.

   How much volume of Acetaminophen liquid can be given every 4 hours to this child?
   160mg/5ml=80mg/X X=5 ml x 80mg/160mg = 2.5ml

2. A child weighs 30kg. The safe daily drug dosage is 4mg/kg/day. Calculate the total daily dosage for this child.

   30kg x 4mg/kg/day = 120 mg/day

   a. 12mg/day
   b. 120mg/day
   c. 160mg/day
   d. .12 g/day

3. A 1-year old infant weighing 8 kg has an order for Augmentin 125mg po q 8hours. The safe dose range is 20-40 mg/kg/24 hours to be given q8 hours.

   a. Calculate the safe dose range for this child.
      8kg x 20mg/kg/24hours = 160 mg/24 hours
      8kg x 40 mg/kg/24hours = 320 mg/24 hours

   b. What will be the total dose given in 24 hours?

      125 mg x 3 = 375mg

   c. Is the dose ordered a safe dose for this child?
      No, it is greater than the safe dose.

4. A 3-year-old child weighing 13 kg is ordered Theophylline 65 mg Q 6 hours via his G-tube. The safe dose range is 22mg/kg/24 hours to be given Q 6 hours. The bottle is labeled 80mg/15 mL.

   a. Calculate the safe dose range for this child.

      13 kg x 22mg/kg/24hours = 286 mg/24 hours

   b. Is the dose ordered a safe dose for this child?
      Dose ordered: 65mg x 4 = 260mg/24 hours Yes the dose is safe

   c. How much of the solution should the nurse draw up to be given for each dose?
      80 mg/15 ml = 65 mg/X X = 15 ml x 65mg/80 mg = 12.187 = 12.2ml

5. A 17 year old weighing 140 pounds has an order for Norco 5/325 (hydrocodone 5mg and 325mg acetaminophen) 1 tablet po every 4 hours PRN as needed for pain.

   If he takes the dose every 4 hours as prescribed, what is the total amount of Acetaminophen he will take in a 24-hour period?

   6 x 325mg = 1,950 mg

6. The nurse is preparing to administer Cefotaxime 800mg IV every 6 hours to a 5-year-old who weighs 15kg. The safe dose range is 50 to 200mg/kg/24 hours given every 6 hours.
   For IV use, the nurse must dilute this dose with sterile water at a concentration of 50mg/mL sterile water. This will be given IV piggyback over 30 minutes.

   a. Calculate the safe dose range for this child.
      15 kg x 50 mg/kg/24 hours= 750mg/24hours / 4= 187.5mg per dose
      15 kg x 200mg/kg/24hours=3000mg/24 hours /4= 750 mg per dose

   b. Is the dose ordered a safe dose for this child?

Dose ordered: 800mg x 4 = 3200mg/24 hours This is more than the safe dose.

   c. How much solution of sterile water must the 800 mg be diluted into prior to administering it IV piggyback.
      800mg/50mg/ml = 16 ml

7. Calculate the daily fluid volume for a 32kg child.

   1500 mL + 12 kg(20mL/kg) = 1740 mL/day

8. Calculate the daily fluid volume for a 16kg child.

   1000 mL + 6 kg(50 mL/kg) = 1300 mL/day

9. Calculate the BSA for a child who weighs 11.3 kg and is 75 cm.

   $\sqrt{\frac{11.3\,kg\,x\,75\,cm}{3600}}$ = 0.49 m^2

10. A child is ordered an infusion of cytarabine 200 mg/m2 in 0.9% NaCl to infuse over 24 hours. If the child weighs 22.7 kg and is 120 cm.
    a. Calculate the BSA for this child.

    $\sqrt{\frac{22.7\,kg\,x\,120\,cm}{3600}}$ = 0.87 m^2

    b. How many mg of cytarabine would you add to the 9% NaCl?

    0.87 m^2 x 200 mg/m^2 = 174 mg