

Pediatric Med Math Practice Quiz #1 Key

Show your calculations

1. A 2-year-old weighs 12 kg. The provider orders acetaminophen 160 mg PO q4 hours PRN for pain. Acetaminophen comes in liquid form of 80 mg/5 mL.

- a. What volume of liquid will you give each time you administer the prescribed dose?

$$\frac{160}{80} * 5 \rightarrow 2(5) = 10 \text{ mL}$$

- b. If the safe dose range is between 10-15 mg/kg/dose. Is the prescribed does a safe amount to be given in a 24-hour period?

$$10(12) = 120 \text{ mg/dose}$$

$$15(12) = 180 \text{ mg/dose}$$

Answer: YES. The order of 160 mg falls within the safe dosage range of 120-180 mg/dose.

2. A 13-month-old infant weighs 8 kg and is ordered Augmentin 125 mg PO TID. The safe dosage range is 20-40 mg/kg/24 hours.

- a. Calculate the daily safe range for this child.

$$8(20) = 160 \text{ mg/day}$$

$$8(40) = 320 \text{ mg/day}$$

RANGE: 160-320 mg/day

- b. Based on the current order, what is the total amount of Augmentin in mg given in 24 hours?

$$125(3) = 375 \text{ mg/day}$$

- c. Calculate the safe range/dose

$$160/3 = 53.33 \text{ mg/dose}$$

$$320/3 = 106.67 \text{ mg/dose}$$

mg/dose Range: 53.33-106.67 mg/dose

- d. Is the ordered dosage safe for this child?

NO. 375 mg/day > 320 mg/day

3. A 3-year-old child weighs 13 kg and is ordered Theophylline 65 mg QID via G-tube. The safe dosage is 22 mg/kg/day. The bottle is labeled 80 mg/15 mL.

- a. Calculate the safe dosage for this child

$$22(13) = 286 \text{ mg/day}$$

- b. What is the daily dose of Theophylline the child will receive?

$$65(4) = 260 \text{ mg/day}$$

- c. How much of the solution should the nurse draw up to be given for each dose? Round to the nearest whole mL

$$\frac{65}{80} * 15 = 12.1875 \rightarrow 12 \text{ mL}$$

4. A 2 month old weighs 16 lbs. They have Famotidine oral suspension ordered at 0.5 mg/kg once daily. The oral suspension contains 40 mg/5 mL.

- a. How many mg will be administered per dose? Round to the nearest hundredth

$$16 \text{ lbs} / 2.2 = 7.27272727 \text{ kg}$$

$$0.5(7.27272727) = 3.6363636364 \text{ mg} \rightarrow 3.64 \text{ mg}$$

- b. How many mL will be administered per dose? Round to the nearest hundredth.

$$\frac{3.64}{40} * 5 = 0.455 \text{ mL} \rightarrow 0.46 \text{ mL}$$

5. Calculate the BSA for adolescent who weighs 142 lbs. and is 4 feet 10 inches tall. Round to the nearest hundredth.

a. $\frac{142}{2.2} = 64.545454545 \text{ kg}$

b. $4(12) = 48 \text{ inches}$

c. $48(2.54) + 10(2.54) = 147.32 \text{ cm}$

d. $\sqrt{147.32(64.5454545)}$

e. $\sqrt{\frac{9,508.8362}{3600}}$

f. $\sqrt{2.6413433}$

g. $\hat{i} 1.625221$

h. 1.63 m^2

6. Calculate the BSA for a child who weighs 13.6 kg and is 90 cm tall.

a. $\sqrt{13.6(90)}$

b. $\sqrt{\frac{1224}{3600}}$

c. $\sqrt{0.34}$

d. $\approx 0.5830951 m^2$

e. $0.58 m^2$

7. Calculate the daily fluid volume for a 6 kg child.

Formula: 3.5-10 kg = 100 mL/kg

$6(100 mL) = 600 mL/day$

8. Calculate the daily fluid volume for a 44-pound child.

a. $\frac{44}{2.2} = 20 kg$

b. **Formula: 11-20 kg = 1000 mL + 50 mL/kg for every kg over 10**

c. $1000 mL + 50(20 - 10)$

d. $1000 mL + 50(10)$

e. $1000 mL + 500 = 1500 mL/day$

9. Calculate the daily fluid volume for a child weighing 28 kg

a. **Formula: >20 kg = 1500 mL + 20 mL/kg over 20 kg**

b. $1500 mL + 20(28 - 20)$

c. $1500 mL + 20(8)$

d. $1500 mL + 160 = 1,660 mL/day$