Pediatric Math Practice 2025 KEY

1. An infant with apnea is prescribed 0.12 mg of theophylline elixir orally every 8 hours. The child weighs 10kg.

   The concentration of the theophylline elixir is 80 mg/15 mL = 5.33mg/mL

   The nurse should administer how many milliliters of the theophylline elixir? (Round answer to the nearest hundredth)

   $\frac{0.12mg}{5.33mg} = \boxed{0.02mL}$

2. A 16-kg child is prescribed 6 mL of acetaminophen and codeine elixir, PO, for pain

   Concentration of elixir: 120 mg acetaminophen and 12 mg codeine per 5 mL = 2.4mg/mL

   The child will receive how many milligrams of codeine is in the 6-milliliter dose? (Round answer to the nearest whole number)

   2.4mg x 6mL = 14mg of Codeine

3. The recommended range for a medication is 200 to 400 mg/kg/day in 4 to 6 divided doses. The patient is 7 kg. Which of the following doses are within the recommended range?

   (6h) (4h)

   (A) 350 – 700 mg every 6 hours

   B. 250 – 450 mg every 4 hours

   C. 1200 – 2400 mg every 4 hours

   D. 1400 – 3200 mg every 6 hours

   200mg x 7kg = 1400mg ÷ 4doses = 350mg q 6hrs
   1400mg ÷ 6doses = 233.3mg q 4 hrs.
   400mg x 7kg = 2800mg ÷ 4doses = 700mg q 6hrs.
   2800mg ÷ 6 doses = 466.7mg q 4hrs

4. A health care provider's prescription reads "ampicillin sodium 95 mg IV every 6 hours."

   The medication label reads "when reconstituted with 7.4 ml of bacteriostatic water, the final concentration is 1 g/7.4 mL." 1000mg/7.4mL = 135.2mg/mL

   The nurse prepares to draw up how many milliliters to administer the dose?

   $\frac{95mg}{135mg} = \boxed{0.7mL}$

5. The IVPB you are to administer contains 350 mg of ceftriaxone mixed in 25 mL of Normal Saline.

   The recommended dilution is 10mg to 40 mg per mL.

   Does the dilution fall in the recommended range? yes

$\frac{350mg}{25mL} = \boxed{14mg/mL}$

6. The pediatric dose for piperacillin sodium is 200 mg to 300 mg/kg/24 hours in equally divided doses every 4 to 6 hours. The patient weighs 30 kg. Which of the following is within the recommended range?

(6doses) (4doses)

200mg x 30kg = 6000mg ÷ 6doses = 1000mg q 4hrs.
6000mg ÷ 4 doses = 1500mg q 6hrs.

300mg x 30kg = 9000 mg ÷ 6doses = 1500mg q 4hrs
9000mg ÷ 4 doses = 2250mg q 6hrs.

~~A.~~ 2,000 mg every 4 hours

(B.) 1,200 mg every 4 hours

~~C.~~ 1,450 mg every 6 hours

~~D.~~ 6,000 mg every 6 hours

4doses 3doses 2doses

7. The recommended range for a medication is 40 mg/kg/24 hours equally divided and given every 6, 8, or 12 hours. The child weighs 30 kg. Which of the following doses is within the recommended range?

40mg x 30kg = 1200mg ÷ 4doses = 300mg q 6hrs.
1200mg ÷ 3doses = 400mg q 8 hrs.
1200mg ÷ 2doses = 600mg q 12hrs.

~~A.~~ 200 mg every 6 hours

(B.) 400 mg every 8 hours

~~C.~~ 100 mg every 12 hours

~~D.~~ 1,200 mg every 24 hours

8. The nurse received an order to administer a medication every 6 hours for a 17 kg child.

   4doses

   Recommended Dose: 2 to 4 mg/kg/day

   What is the recommended range (per dose) of this medication for this patient?

2mg x 17kg = 34mg ÷ 4doses = 8.5mg

4mg x 17kg = 68mg ÷ 4doses = 17mg

9. A medication is prescribed for a 15-kg child.

The recommended dose of medication is 50 to 180 mg/kg/24 hours in 4 or 6 equally divided doses.

A dose within the recommended range is which of the following?

~~A.~~ 100 mg every 6 hours
~~B.~~ 2 gm every 6 hours
(C.) 166 mg every 4 hours
~~D.~~ 750 mg every 4 hours

50mg x 15kg = 750mg ÷ 4 doses = 187.5mg q 6hrs.
750mg ÷ 6 doses = 125mg q 4 hrs.
180mg x 15kg = 2700 mg ÷ 4 doses = 675mg q 6 hrs.
2700mg ÷ 6 doses = 450mg q 4 hrs.

10. The nurse is verifying the recommended dose for a 25 kg child receiving a medication.

The Recommended Dose: 0.2 to 0.5 mg/kg/24 hr in equally divided doses every 6 hours. Which dose is within the recommended range?

~~A.~~ 5 mg every 6 hours
(B.) 3 mg every 6 hours
~~C.~~ 12.5 mg every 6 hours
~~D.~~ 20 mg every 6 hours

0.2mg x 25kg = 5mg ÷ 4 doses = 1.25mg q 6 hrs.
0.5mg x 25kg = 12.5mg ÷ 4 doses = 3.13mg q 6 hrs.

11. The nurse is to administer 220 mg of acetaminophen elixir PO. The nurse has acetaminophen 120 mg/5 mL available.

24mg | mL

How many milliliters should the nurse draw up in the PO syringe?
round to the whole number

$\frac{220mg}{24mg} = \boxed{9mL}$

12. The nurse is to administer a 50 mL IVPB over 1 hour using IV tubing with a drop factor of 15 gtt/mL. The nurse will adjust the roller clamp to administer how many drops per minute? (Round answer to the nearest whole number.)

$\frac{50mL \times 15gtt|mL}{60min.} = \frac{750gtt}{60min} = \boxed{13gtt|min}$

13. The nurse is to administer digoxin 26 micrograms to an infant
Concentration of Digoxin in Vial: 0.1 mg/mL = 100mcg | mL
The nurse should withdraw how many milliliters of digoxin from the vial?
nearest tenth

$\frac{26mcg}{100mcg} = \boxed{0.3mL}$

3 doses

14. The nurse received an order for ranitidine every 8 hours for a 21 kg child.
Medication reference
Recommended Dose: 2 to 4 mg/kg/day
What is the recommended range per dose?

2mg x 21 kg = 42mg ÷ 3 doses = 14mg q 8hrs

4mg x 21 kg = 84mg ÷ 3 doses = 28mg q 8 hrs.

15. Patient: 18 kg child
Prescribed Medication: Acylovir, IV, 10 mg/kg every 8 hours
The nurse should calculate the dose of acylovir to be how many milligrams every 8 hours?

10mg x 18 kg = **180mg q 8 hrs.**

16. An infant, weighing 3,800 grams is prescribed ampicillin sodium 12.5 mg/kg
The ampicillin vial has a concentration of 250 mg/5 mL = 50mg/mL
The nurse will withdraw how many milliliters of ampicillin from the vial? Round to whole number.

3800 gm x 0.001 kg = 3.8 kg x 12.5mg = $\frac{47.5\text{mg}}{50\text{mg}}$ = **1mL**

- or -

(3800gm ÷ 1000 = 3.8)