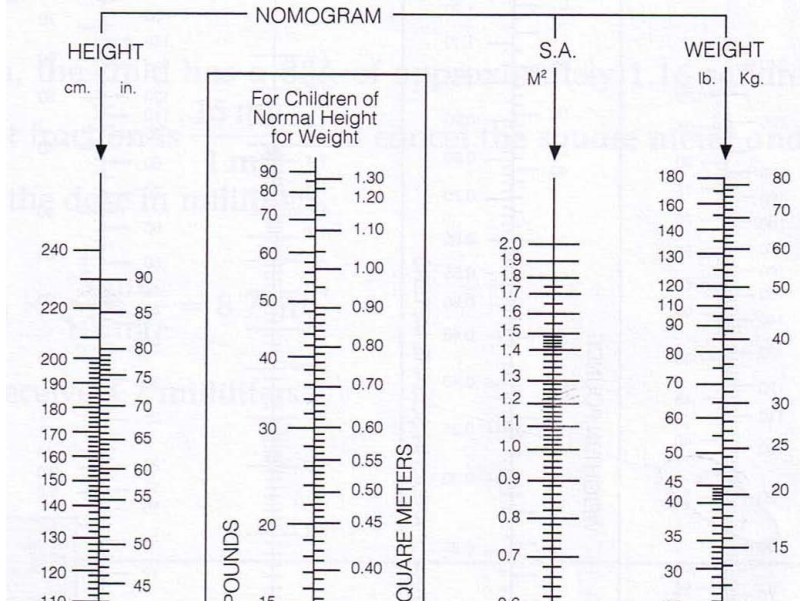


Part I: **No Calculator.** No books. No notes. Answer all the questions. Do it by yourself.



1. A child is 3 feet 11 inches tall and weighs 45 pounds. Use the given pediatric nomogram to find the body surface area of this child. Accurate to two decimal places. Write down the appropriate unit.

\_\_\_\_\_

Interpret the following symbols/notations:

2. OD \_\_\_\_\_

3.  $\bar{s}$  \_\_\_\_\_

4. a.c. \_\_\_\_\_

5. qod \_\_\_\_\_

6. How many significant figures are there in 0.0003041? \_\_\_\_\_

7. Write as a decimal number. 23501% \_\_\_\_\_

8. Place an arrow clearly on the syringe to indicate the quantity of 72 units.





9. Find the trade name.

\_\_\_\_\_

10. Find the amount of pure drug per tablet.

\_\_\_\_\_

11. Write 0.000000003478 in scientific notation.

\_\_\_\_\_

12. How many 1 gram aluminum acetate tablets would you use to prepare 1.3 liters of 10% aluminum acetate (Burrow's) solution?

\_\_\_\_\_

13. Write as a logarithm equation.  $9^2 = 81$

\_\_\_\_\_

14. Use the properties of logarithms to write  $3\log_5 x + 9\log_5 y$  as a single logarithm.

\_\_\_\_\_

15. Write your answer in scientific notation.  $(2 \times 10^8) \div (5 \times 10^{-6})$

\_\_\_\_\_

16. Simplify. Write your answer using positive exponents.  $\left(\frac{27x^{-2}y}{-3x^3}\right)^{-1}$

\_\_\_\_\_

17. Write down the equivalent time in the military clock. 12:49 a.m.

\_\_\_\_\_

18. The order reads grains 4 of a drug. Change this to milligrams.

\_\_\_\_\_

Fill in the blanks.

19. 3 inches ~ \_\_\_\_\_ m

20. 74 milliliter = \_\_\_\_\_ L

21. 4670 mcg = \_\_\_\_\_ mg

22. 66 pounds ~ \_\_\_\_\_ kg

23. 5 quarts = \_\_\_\_\_ pints

24.  $17 \times 23 =$  \_\_\_\_\_

25.  $16.762 + 45.9$  \_\_\_\_\_  
(Give the exact answer)

26.  $1749 \div 7$  \_\_\_\_\_  
(Round to 1 decimal place)

27. Write as a single logarithm.  $3\log_4 5 - \log_4 6$

28. Find the value of the expression.  $\log_{10} 1,000$  \_\_\_\_\_

29. The physician ordered 2 tablespoons of Mylanta po, an antacid medication.  
How many teaspoons would you prepare? \_\_\_\_\_

30. Assume that  $x$  is a nonzero real number. Evaluate the following.  $(3x)^0 + 3x^0$  \_\_\_\_\_

31. A prescriber has ordered 25 milligrams of captopril (Capoten) po.  
What is the equivalent quantity in micrograms? \_\_\_\_\_

32. List the Five “Rights” of Medication Administration \_\_\_\_\_

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

Part II: You will need a **Calculator**. No books. No notes. Answer all the questions.

**Show all your work.** Do it by yourself.

33. If an infant weighs  $7\frac{1}{2}$  pounds, what is the equivalent in ounces?

\_\_\_\_\_

34. The prescriber ordered insulin 0.52 units/kg sc qd. The label on the vial reads 100 units per milliliter. How many milliliters will you give your patient, who weighs 65 kilograms? (Round to two decimal places.)

\_\_\_\_\_

35. Perform the calculation to the correct number of significant figures.  
 $4.5 \times 0.0762 + 3.721$

\_\_\_\_\_

36. Describe how you would prepare 240 mL of a  $\frac{1}{4}$  solution of Ensure from a can labeled 100% Ensure.

\_\_\_\_\_

\_\_\_\_\_

37. How many milliliters of a 25% solution of glucose will contain 50 g of a drug?

\_\_\_\_\_

38. Order: Coumadin 2.5 mg po Monday, Wednesday, and Friday and 1 mg po Tuesday, Thursday, Saturday, and Sunday. How many milligrams of Coumadin will your patient receive in one week?

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39. Dexamethasone (Decadron), a steroid, 3 milligrams po q12h has been ordered for a patient. The label of Dexamethasone states 1.5 mg per tablet. Calculate the number of tablets that the patient will receive in 24 hours.

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40. The order reads: 125 mL 5% D/W IV in 1 hour  
The drop factor is 60 microdrops per milliliter. What is the flow rate in microdrops per minute?

---

41. The prescriber ordered 1000 mL 0.9% NS in 8 hr IV  
The flow rate is 31 drops per minute. When the nurse assessed the infusion, 400 milliliters had infused in 4 hours. Calculate the new flow rate, in drops per minute, if the drop rate is 15 drops per milliliter. Round to the nearest drop.

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42. An intravenous solution is infusing at a rate of 18 drops per minute. The drop factor is 10 drops per milliliter. How many milliliters per hour is the patient receiving?

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43. The BSA of a child is  $0.62 \text{ m}^2$ . The order states  $400 \text{ mg/m}^2$  of Augmentin po. The label reads 250 mg in 5 mL. How many milliliters will you prepare for this child? (Round to 2 decimal places.)

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44. The prescriber has ordered 500 milliliters normal saline with 100 units of Humulin R insulin (1 milliliter). Infuse at a rate of 0.7 milliliter per minute. How long will it take to complete this infusion? Give your answer correct to the nearest minute; for example, 3 hours 59 minutes.

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45. The patient must receive 1,500,000 units of penicillin IM, and the vial contains 20,000,000 units (in powdered form). The directions are as follows: Add 38.7 mL to vial; 1 mL = 500,000 units. How many milliliters will equal 1,500,000 units?

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46. The order reads: morphine sulfate 0.4 mg IM stat  
The recommended dose is 0.01 milligram per kilogram.  
Is this a safe dose for a child who weighs 35 kilograms?

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47. The prescriber ordered 900 mL 5% D/W at 17 gtt/min IV. The infusion began at 8 p.m. The drop factor is 15 drops per milliliter. At what time will this solution be completed? Round to the nearest minute; for example, 11:13 p.m.

---

48. Given  $K_w = [\text{H}_3\text{O}^+][\text{OH}^-] = 1.0 \times 10^{-14}$ . Calculate  $[\text{H}_3\text{O}^+]$  if  $[\text{OH}^-] = 3.8 \times 10^{-12}$ .

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49. Given  $\text{pH} = -\log[\text{H}_3\text{O}^+]$ . Calculate the pH of the following solution.

$$[\text{H}_3\text{O}^+] = 2.6 \times 10^{-8} \text{ M}$$

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50. How would you prepare 5 L of a 1 : 40 solution from a 1 : 25 stock solution?  
(Give your answer correct to the nearest milliliter.)

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Happy Holidays!

Form 1 answers:

1.  $0.83 \text{ m}^2$
2. Right eye
1. without
2. before meals
3. every other day
4. 4
5. 235.01
6. 72 units
7. Zyprexa
8. 7.5 mg
9.  $3.478 \times 10^{-9}$
10. 130 tablets
11.  $2 = \log_9 81$
12.  $\log_5 x^3 y^9$
13.  $4 \times 10^{13}$
14.  $\frac{x^5}{-9y}$
15. 0049 hours
16. 240 mg
17. 0.0762 m
18. 0.074 L
19. 4.67 mg (No trailing zero!)
20. 30 kg
21. 10 pints
22. 391
23. 62.662
24. 249.9
25.  $\log_4 \frac{125}{6}$
26. 3
27. 6 t
28. 4
29. 25,000 mcg
30. Right drug, right patient, right dose, right time, right route.

Form A answers:

33. 120 oz
34. 0.34 mL
35. 4.06
36. Put 60 mL of 100% Ensure in a container and add enough solvent to make 240 mL.
37. 200 mL
38. 11.5 mg
39. 4 tablets
40. 125 microdrops per minute
41. 38 gtt/min
42. 108 mL/hr
43. 4.96 mL
44. 11 hours 56 minutes
45. 3 mL
46. No.
47. 9:14 a.m. next morning
48. 0.0026 or  $2.6 \times 10^{-3}$
49. 7.59
50. Put 3125 mL of 1:25 stock solution in a container and add enough diluent to make 5 L.