

CHA Student: \_\_\_\_\_ Date: \_\_\_\_\_

Village: \_\_\_\_\_ Tribal Health Organization: \_\_\_\_\_

Reviewer: \_\_\_\_\_

## **CHAP Medical Math Assessment**

### Instructions

This Medical Math Assessment must be completed by you before the end of your Pre-Session Course. Your Pre-Session Course Coordinator will give you a specific due date.

This Math Assessment will help identify the math skills you need to do the job of Community Health Aide well.

This assessment tool will help us work with you to improve skills you may not have used for awhile.

Please work on this by yourself; we want to assess YOUR math skills. Please also show your work, it will help us to see how you figured things out.

You will need a measuring tape or ruler with millimeters and inches to complete some of the questions.

Numbers and letters in brackets to the right of some problems are for instructor use only. These numbers correspond with items on the Math Skills Checklist which you will receive later.

RELAX.

TAKE YOUR TIME.

DON'T WORRY.

Reading and using the CHAM.

The Alaska Community Health Aide/Practitioner Manual (CHAM) lists pages for plans of care and medicines. To find the correct pages you need to know high and low numbers.

Consecutive numbers (order of numbers)

1. a. Fill in the correct number: 1, 3, 5, \_\_\_\_\_, 9

Rearrange the numbers in order of smallest to the largest:

b. 8, 6, 14, 2, 21      \_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_

c. 22, 318, 96, 226, 107, 8

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

d. 4.1, 2, 4, 3.2, 1.8, 1.1

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_

Add:

2. a. 
$$\begin{array}{r} 8 \\ +9 \\ \hline \end{array}$$

b. 
$$\begin{array}{r} 132 \\ +357 \\ \hline \end{array}$$

c. 
$$\begin{array}{r} 686 \\ +275 \\ \hline \end{array}$$

d. 
$$\begin{array}{r} 4 \\ 2 \\ +3 \\ \hline \end{array}$$

e.  $175 + 12 + 50 =$

Subtract:

3. a. 
$$\begin{array}{r} 9 \\ -6 \\ \hline \end{array}$$

b. 
$$\begin{array}{r} 864 \\ -760 \\ \hline \end{array}$$

c. 
$$\begin{array}{r} 416 \\ -128 \\ \hline \end{array}$$

d. 
$$\begin{array}{r} 600 \\ -543 \\ \hline \end{array}$$

e. 
$$\begin{array}{r} 500 \\ -250 \\ \hline \end{array}$$

f.  $25 - 3 - 9 - 8 =$

Multiply: Show your work near the problem.

4. a. 4 times 3 =

b.  $7 \times 8 =$

c. 
$$\begin{array}{r} 17 \\ \times 6 \\ \hline \end{array}$$

d. 
$$\begin{array}{r} 811 \\ \times 9 \\ \hline \end{array}$$

e. 
$$\begin{array}{r} 639 \\ \times 5 \\ \hline \end{array}$$

f. 
$$\begin{array}{r} 23 \\ \times 12 \\ \hline \end{array}$$

g. 
$$\begin{array}{r} 532 \\ \times 30 \\ \hline \end{array}$$

h. 
$$\begin{array}{r} 14 \\ \times 2 \\ \hline \end{array}$$

i. 
$$\begin{array}{r} 56 \\ \times 4 \\ \hline \end{array}$$

j. 
$$\begin{array}{r} 250 \\ \times 2 \\ \hline \end{array}$$

k. 
$$\begin{array}{r} 4 \\ \times 4 \\ \hline \end{array}$$

Divide: Show your work near the problem.

5. a.  $6 \div 2 =$  \_\_\_\_\_

b. ten divided by two is \_\_\_\_\_

c.  $54 \div 9 =$  \_\_\_\_\_

d.  $3 \overline{)1236}$

e.  $2 \overline{)250}$

6. Last week you worked 5 hours on Monday, 7 hours on Tuesday, 5 hours on Wednesday, 6 hours on Thursday.

a. How much time did your work last week? \_\_\_\_\_  
(Do your work on this page.)

b. How many hours will you still have to work to complete a 30 hour week? \_\_\_\_\_

7. The CHA earned \$98.00 dollars a day; how much will she earn in 50 days?

8. Fourteen babies came for immunizations. The CHA needed two syringes for each baby. How many syringes did she use all together?

9. David cut 344 pieces of moose. He divided it equally among 8 families. How many pieces did each family get?



Subtract Decimals:

[6a,b]

14. a. 
$$\begin{array}{r} 1.25 \\ - .35 \\ \hline \end{array}$$

b. 
$$\begin{array}{r} 2.00 \\ - .22 \\ \hline \end{array}$$

c. 
$$\begin{array}{r} 1.54 \\ - 1.22 \\ \hline \end{array}$$

d.  $.50 - .125 = \underline{\hspace{2cm}}$

Multiply Decimals:

[6a,b]

15. a. 
$$\begin{array}{r} .50 \\ \times 2 \\ \hline \end{array}$$

b. 
$$\begin{array}{r} .35 \\ \times .2 \\ \hline \end{array}$$

c. 
$$\begin{array}{r} 500 \\ \times .50 \\ \hline \end{array}$$

d.  $.25 \times 2 = \underline{\hspace{2cm}}$

Dividing Decimals:

[6a,b]

16. a.  $4 \overline{) .100}$

b.  $2 \overline{) .500}$

c.  $.25 \overline{) .125}$

Problems: (Show how you solved the problem.)

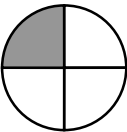
17. Harriet gave a party and had five dollars, which was enough to give each child at the party \$.50. How many children at the party received fifty cents? [6a,b]

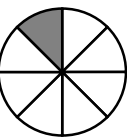
18. Bob's gas and oil cost \$13.75. He gave the gas station man \$20.00 dollars. How much did he receive in change? [6a,b]

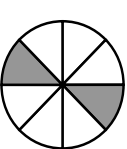
Fractions:

Sometimes medicines at the clinic need to be divided according to dosage. Dividing things into smaller equal size parts makes them fractions. The next group of problems is about parts of a whole or fractions.

19. Circle the fraction that shows the shaded part of the pie. [5a,b,d,f]  
Reduce any fractions as necessary.

a.   $1/4$   $1/2$   $1/3$   $1/6$

b.   $1/4$   $1/2$   $1/3$   $1/8$

c.   $1/4$   $1/2$   $1/3$   $2/8$

20. You have seen 25 of 100 patients. What fraction of patients have you seen? [5b,f]  
(reduce your answer to lowest terms)

Add Fractions: Reduce answers to lowest terms.

21. a. 
$$\begin{array}{r} \frac{1}{4} \\ \frac{2}{4} \\ \hline + \frac{4}{4} \end{array}$$
 b.  $1/2 + 3/2 =$  [5a,b,f]  
reduce to: \_\_\_\_\_

Subtract Fractions:

22. a. 
$$\begin{array}{r} \frac{1}{2} \\ \frac{1}{4} \\ \hline - \frac{4}{4} \end{array}$$
 b. 
$$\begin{array}{r} \frac{3}{3} \\ \frac{2}{3} \\ \hline - \frac{3}{3} \end{array}$$
 c.  $3/4 - 1/4 =$  [5a,b,f]  
reduce to: \_\_\_\_\_

23. Adding Mixed Numbers: Reduce answers to lowest terms. [5a,b,f]

a. 
$$\begin{array}{r} 1 \frac{1}{4} \\ + 2 \frac{2}{4} \\ \hline \end{array}$$

b. 
$$\begin{array}{r} 1 \frac{1}{2} \\ + 1 \frac{3}{4} \\ \hline \end{array}$$

24. Subtracting Mixed Numbers: Reduce answers to lowest terms. [5a,b,f]

a. 
$$\begin{array}{r} 2 \frac{3}{4} \\ - 1 \frac{1}{4} \\ \hline \end{array}$$

b. 
$$\begin{array}{r} 3 \frac{1}{4} \\ - 1 \frac{3}{4} \\ \hline \end{array}$$

25. John sawed a board. He used  $\frac{1}{4}$  of the wood.

What fraction of the board was left? \_\_\_\_\_

[5b]

26. Rewrite these fractions in order of size. Lowest to highest.

$\frac{1}{8}$        $\frac{1}{2}$        $\frac{1}{4}$        $\frac{3}{8}$   
\_\_\_\_\_  
\_\_\_\_\_

[5a,b,d,f]



Decimals:

27. Tell what the decimal is for each of the following:

[6c]

a.  $4/4 =$  \_\_\_\_\_

d.  $1/2 =$  \_\_\_\_\_

b.  $3/4 =$  \_\_\_\_\_

e.  $1\ 1/4 =$  \_\_\_\_\_

c.  $2\ 1/4 =$  \_\_\_\_\_

Measuring Liquids – Household Measures

In cooking we use household measures. The CHA uses “household measures” as well as other measures when giving medicines; for example, the CHA may teach the patient to use a teaspoon when the medicine bottle tells her the dose is milliliters.

28. Circle one: Two quarts is what part of a gallon?

[5a,b,d,7c]

a.  $1/4$

b.  $1/8$

c.  $1/2$

1 Quart
1 Quart
1 Quart
1 Quart
1 Gallon

29. tsp = teaspoons  
Tbsp = Tablespoon  
c = cup  
pt = pint  
qt = quart  
oz = ounces

Use 2006 CHAM p. M-17 Medicine Chart A  
“Conversion Table” as needed.

a. How many tsps in a Tbsp.? \_\_\_\_\_

[7c]

b. How many cups in a qt.? \_\_\_\_\_

c. How many Tbsp in an oz.? \_\_\_\_\_

d. How many oz in a cup? \_\_\_\_\_

30. Converting Fractions to Pounds and Ounces: [7b,11a,16b]

a. 12 1/2 pounds = \_\_\_\_\_ pounds \_\_\_\_\_ ounces

b. 20 1/4 pounds = \_\_\_\_\_ pounds \_\_\_\_\_ ounces

31. Addition of Pounds and Ounces:

a. 5 lbs. 2 oz.  
+ 4 lbs. 10 oz.

b. 2 lbs. 10 oz.  
+ 5 lbs. 8 oz.

[11a]

32. Subtraction of Pounds and Ounces:

a. 7 lbs. 12 oz.  
- 6 lbs. 10 oz.

b. 10 lbs. 5 oz.  
- 8 lbs. 12 oz.

c. 137 lbs. 8 oz. [11a,d,e]  
- 136 lbs. 12 oz.

Figuring Weight Loss or Weight Gain:

33. A baby weighed 12 lbs. 8 oz last week. [11e]  
Today he weighs 11 lbs. 12 oz.

a. Has he lost or gained weight? \_\_\_\_\_

b. How much? \_\_\_\_\_ lbs. \_\_\_\_\_ oz.

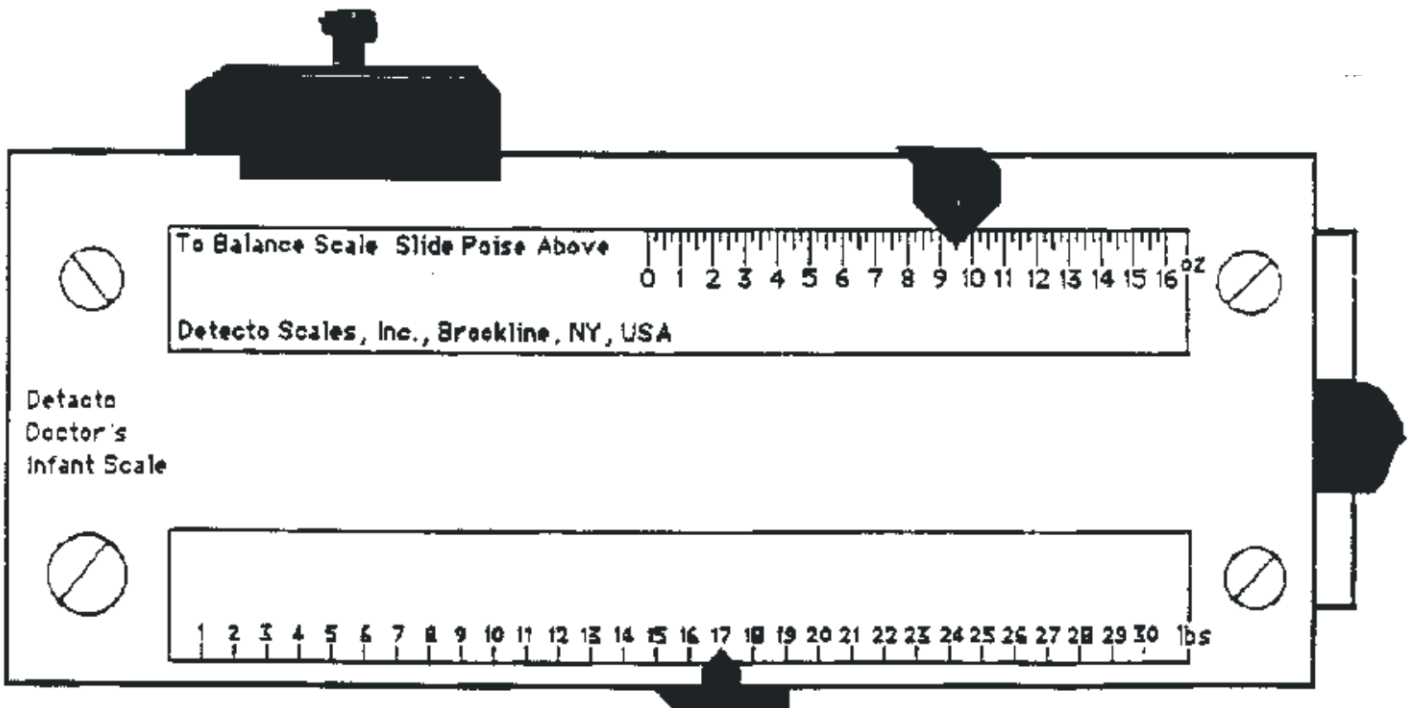
34. A baby weighed 9 lbs. 8 oz. 2 weeks ago. [11d]  
Today he weighs 12 lbs. 4 oz.

- a. Has he lost or gained weight? \_\_\_\_\_
- b. How much? \_\_\_\_\_ lbs. \_\_\_\_\_ oz.
- c. How much did he average each week? \_\_\_\_\_

35. A newborn returns to the village. He weighed 3.7 kilograms at birth. [8b]  
Today he weighs 4.1 kilograms.

How much weight has he gained? \_\_\_\_\_

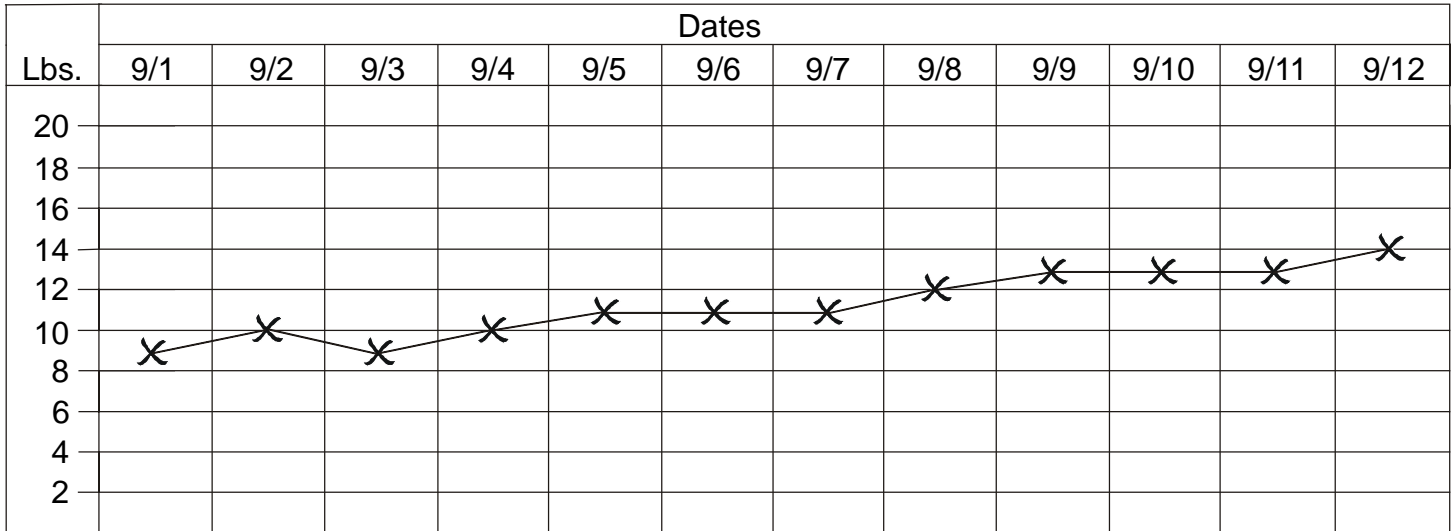
36. What is the weight shown on the scale below? [11b]



\_\_\_\_\_ lbs. \_\_\_\_\_ oz.

37. Reading a Graph: This child had diarrhea and vomiting. The CHA started seeing the child on 9/1. This child had to be followed closely and the CHA saw the child frequently.

[16c]



- What date was the child's weight first recorded? \_\_\_\_\_ [16c,11d]
- What weight was the child on 9/10? \_\_\_\_\_
- What weight was the child on 9/11? \_\_\_\_\_
- Was there a loss or gain from 9/10 to 9/11? \_\_\_\_\_
- How much? \_\_\_\_\_
- What was the weight gain from 9/3 to 9/12? \_\_\_\_\_

38. Changing Feet to Inches:

[7a,9c]

- How many inches are in 2 feet? \_\_\_\_\_
- How many inches are in 1 ft. 6 in.? \_\_\_\_\_

39. Changing Inches to Feet:

- How many feet and inches are in 60 inches? \_\_\_\_\_ ft. \_\_\_\_\_ in. [9c]
- How many feet and inches are in 55 inches? \_\_\_\_\_ ft. \_\_\_\_\_ in.

40. Adding Inches and Feet:

a. 
$$\begin{array}{r} 5 \text{ ft. } 4 \text{ in.} \\ + 4 \text{ ft. } 3 \text{ in.} \\ \hline \end{array}$$

b. 
$$\begin{array}{r} 4 \text{ ft. } 8 \text{ in.} \\ + 3 \text{ ft. } 11 \text{ in.} \\ \hline \end{array}$$

[9c]

41. Subtraction of Inches and Feet:

a. 
$$\begin{array}{r} 5 \text{ ft. } 4 \text{ in.} \\ - 4 \text{ ft. } 3 \text{ in.} \\ \hline \end{array}$$

b. 
$$\begin{array}{r} 4 \text{ ft. } 8 \text{ in.} \\ - 3 \text{ ft. } 11 \text{ in.} \\ \hline \end{array}$$

[9c]

42. A child was 4' 2" last year when you saw him. Today he measures 52"

How much has he grown? \_\_\_\_\_

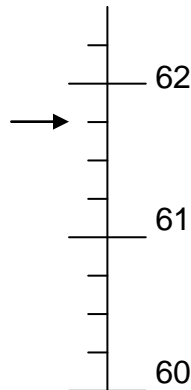
Measuring Length:

43. We can see how children grow and develop by measuring how tall they are at each visit. We use feet and inches or we can use centimeters.

Write the measurement shown below:

[9c]

a. \_\_\_\_\_ in.



b. How many feet \_\_\_\_\_ and inches \_\_\_\_\_?

[7a,9c]

44. Use the 2006 CHAM p. M-17 Medicine Chart A "Conversion Table" to answer these. [8d]

a. 1 ml = \_\_\_\_\_ cc

c. 1 Tbsp = \_\_\_\_\_ ml = \_\_\_\_\_ cc

b. 1 tsp = \_\_\_\_\_ ml = \_\_\_\_\_ cc

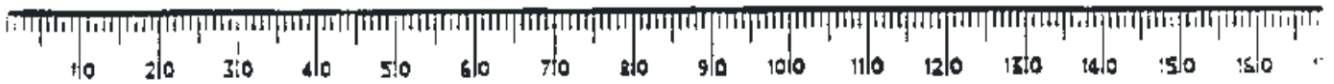
d. 1 liter = \_\_\_\_\_ qt

Reading Inches, Centimeters and Millimeters:

45. a. On the following inch ruler, mark  $5 \frac{3}{4}$  inches. [9a]



b. On the following centimeter ruler, mark  $11 \frac{1}{2}$  centimeters. [8a,9b]



c. On the following centimeter ruler, mark 47 millimeters. [8a,9b]



46. Use a ruler or measuring tape with inches and millimeters to measure the lines: [8a,9a,b]

- a. \_\_\_\_\_ inches
- b. \_\_\_\_\_ cm
- c. \_\_\_\_\_ cm
- d. \_\_\_\_\_ mm

Calculating Age:

47. a. Tom was born on September 15, 1987.

How old was he on April 10, 1989? \_\_\_\_\_ [14b]

b. 1 yr and 7 months = \_\_\_\_\_ months [14d]

- c. Mary was born on October 12, 1949. [14a]

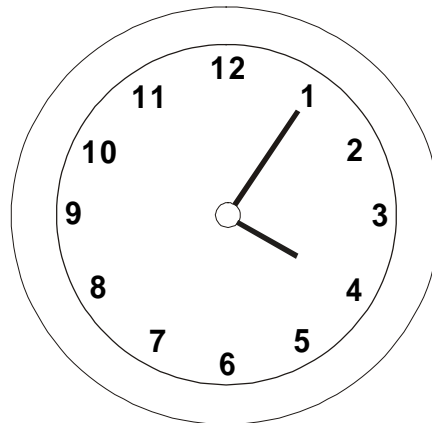
How old was Mary on June 25, 1989? \_\_\_\_\_

How old will she be 1/1/2005? \_\_\_\_\_

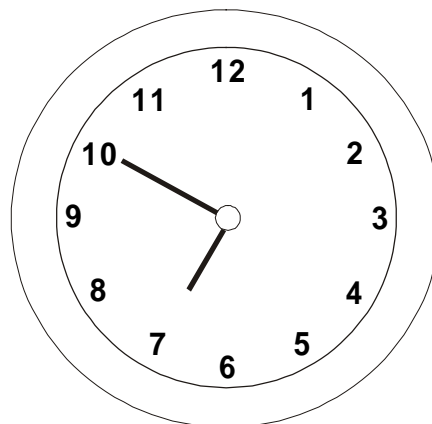
Telling Time:

48. A CHA must be able to read the clock and write the time a patient comes into the clinic. We also count pulses and respiration using a watch or the clock. [1a]

a. The time is \_\_\_\_\_



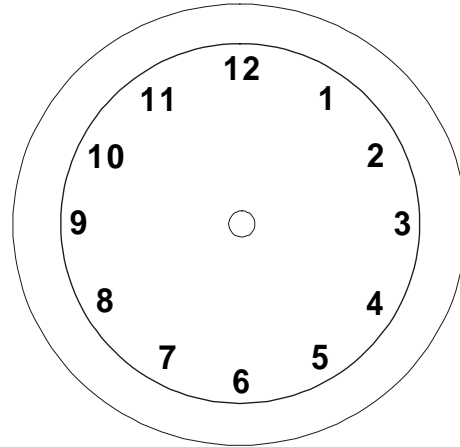
b. The time is: \_\_\_\_\_



49. You are told to count a pulse for 30 seconds.

a. Mark the clock showing 30 seconds.

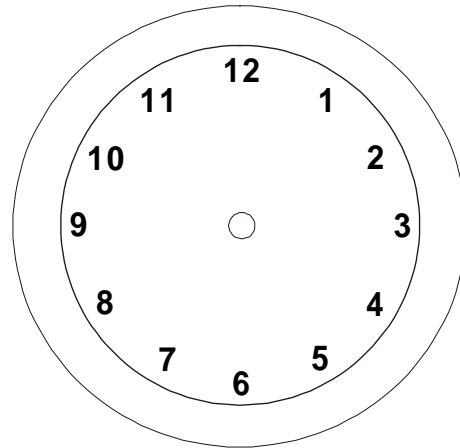
[1a,2c]



You are told to count the pulse for 15 seconds.

[1a,2b]

b. Show 15 seconds on the clock.



Vital Sign Rates:

49. You count the pulse for 15 seconds and get 45.

a. What is the pulse rate? \_\_\_\_\_

[2a,b]

A woman breathes 9 times in 30 seconds.

b. How often does she breathe in one minute? \_\_\_\_\_

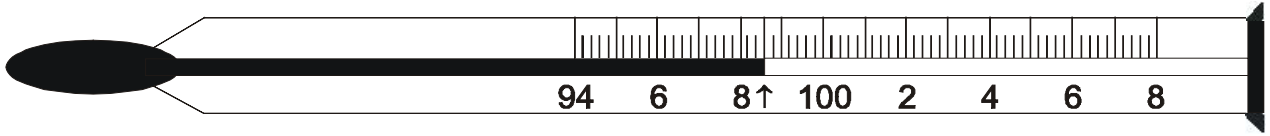
[2a,c]



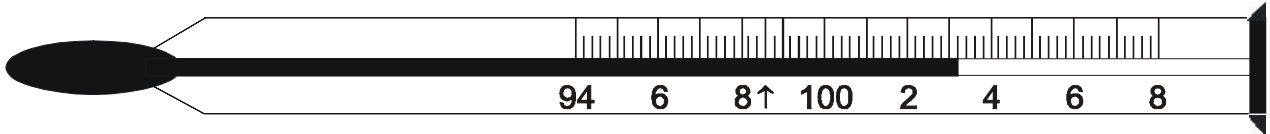
Reading Thermometers:

51.

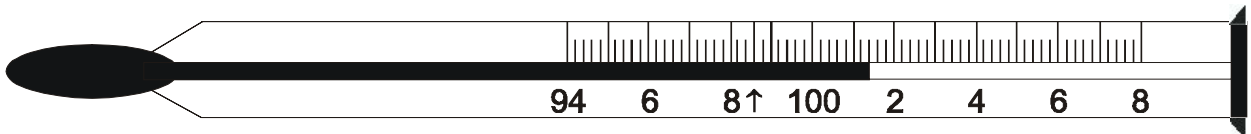
[5c,e]  
[6a,10a,b]



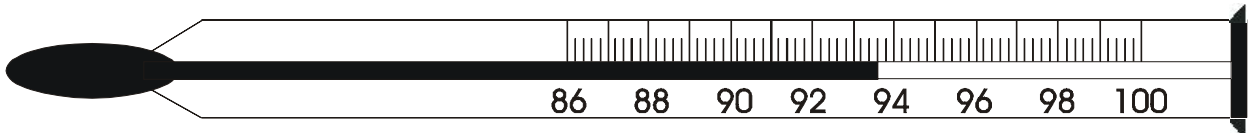
a. The temperature is \_\_\_\_\_



b. The temperature is \_\_\_\_\_



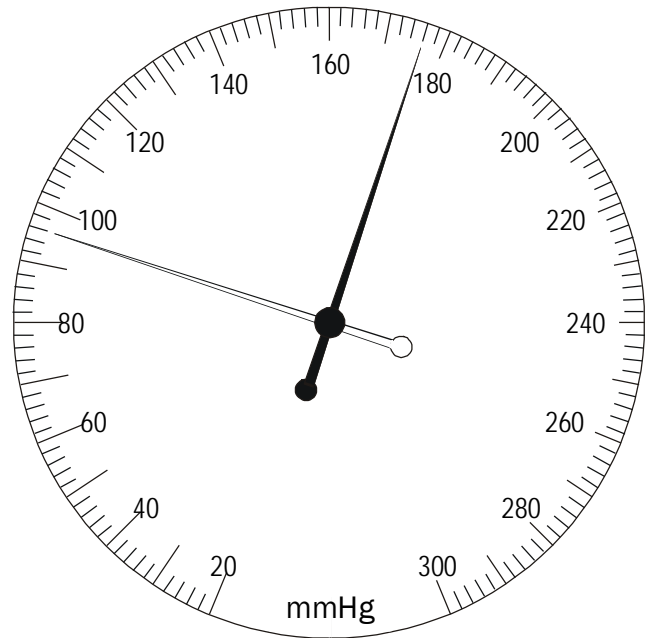
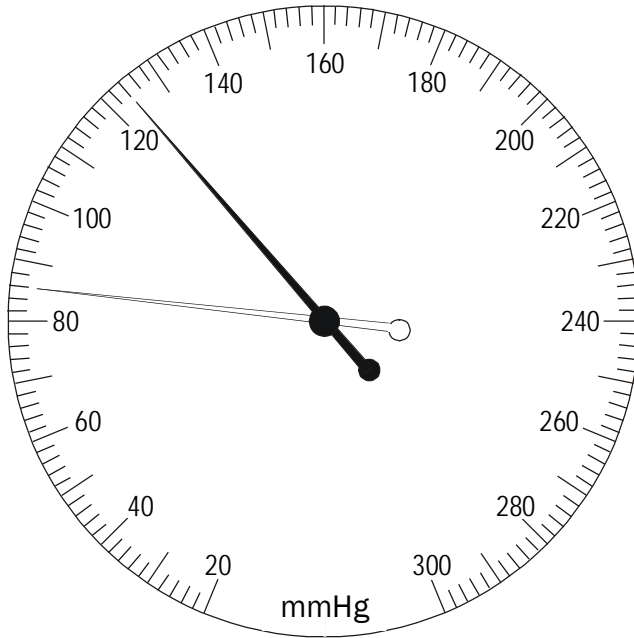
c. The temperature is \_\_\_\_\_



d. The temperature is \_\_\_\_\_

Reading Blood Pressure:

52. On the following blood pressure dials, the dark needle points to the Systolic pressure (first sound) [3a]  
(first sound). The dotted needle points to the Diastolic pressure (second sound).  
Write the numbers of the blood pressure that the needles are pointing to.



- a. B/P \_\_\_\_\_ b. B/P \_\_\_\_\_ [3a]

Changing Grams (Gm) to Milligrams (mg):

53. Use 2006 CHAM p. M-17 Medicine Chart A "Conversion Table" to change these.

- a. 0.5 Gm = \_\_\_\_\_ mg      c. 500 mg = \_\_\_\_\_ Gm [8b]  
b. 1.2 GM = \_\_\_\_\_ mg      d. 1000 mg = \_\_\_\_\_ Gm

Medicine Dosage Calculation:

54. a. Mae needs 500 mg of medicine each dose. One capsule of medicine is 250 mg. [13c]  
How many capsules will she need each dose?

\_\_\_\_\_capsule(s)

- b. Sam needs 100 mg of medicine each dose. You have a liquid medicine that is 200 mg/5ml (1 tsp). [13a,b]  
How much medicine should Sam get for each dose?

\_\_\_\_\_teaspoon(s) = \_\_\_\_\_ml = \_\_\_\_\_cc

- c. Kay needs 0.125 mg of Digoxin (a strong heart medicine) each dose. [6h,13c]  
The strength of one tablet is 0.25 mg.  
How much medicine should she get each dose?

\_\_\_\_\_tablet(s)

- d. Joe needs to take 1 pill of penicillin 4 times a day for 10 days. [13d]  
How many pills should you give him all together?

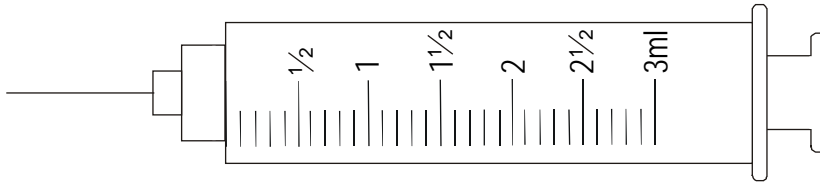
\_\_\_\_\_pill(s)

Reading Syringes:

55. Use your pencil to shade in the right amount on each syringe.

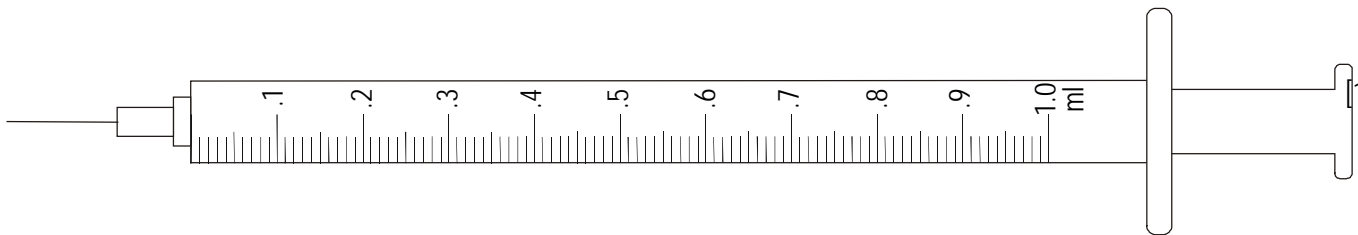
[5e]  
[6a]  
[8c]  
[12b]

a. 1.2 cc



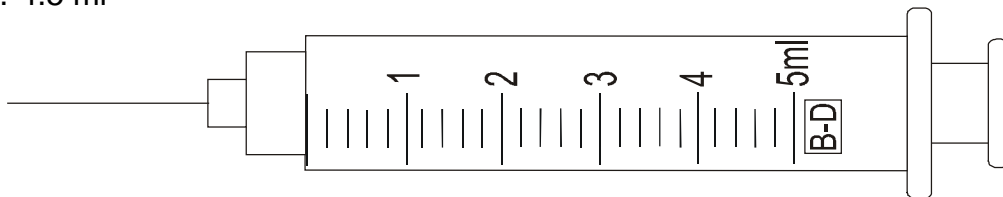
b. .5 ml

[5e]  
[6a]  
[8c]  
[12a]



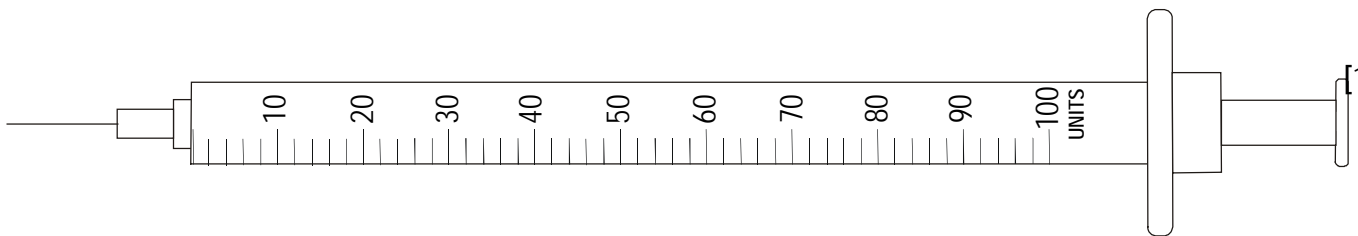
c. 4.5 ml

[5c,e]  
[6a]  
[8c]  
[12c]



d. 70 units

[5c]  
[6a]  
[8c]  
[12g]



56. After completing the history and exam, your assessment is that Johnny has Acute Otitis Media. He is allergic to penicillin. You look in your CHAM at the Plan and Medicine Chart for Cefpodoxime. Johnny is 18 months old and weighs 27 ½ pounds.

[5c]  
[12c]  
[13e]

Mark the syringe with the amount of medicine Johnny needs for each dose.

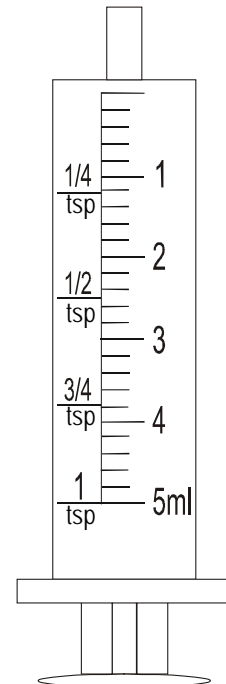
**ANTI-INFECTIVES**

**CEFPODOXIME**

Use this dosing schedule for:  
*Ear 3: Acute Otitis Media, p. 240*

- ▶ Give dose of Cefpodoxime (in chart) by mouth (po) - 2 times a day for 10 days.

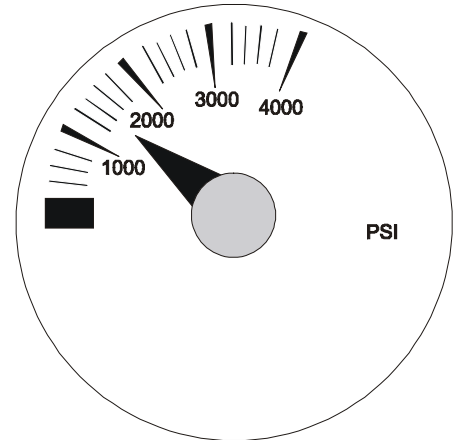
<b>Cefpodoxime (Vantin®), po</b>	
<b>Strength:</b> 100 mg/5 ml suspension, or 200 mg tablets	
<b>Weight (lb)</b>	<b>Dose</b>
Less than 10 lb	Consult doctor.
10 to 14 lb	Consult doctor.
15 to 19 lb	Consult doctor.
20 to 24 lb	2.5 ml (50 mg)
25 to 29 lb	3 ml (60 mg)
30 to 34 lb	3.5 ml (70 mg)
35 to 39 lb	4.25 ml (85 mg)
40 to 44 lb	5 ml (100 mg)
45 to 54 lb	5.5 ml (110 mg)
55 to 64 lb	6.75 ml (135 mg)
65 to 74 lb	8 ml (160 mg)
75 to 84 lb	9 ml (180 mg)
≥ 85 lb & Adult	10 ml (200 mg) or 1 tablet (200 mg)



Reading Pressure Gauges:

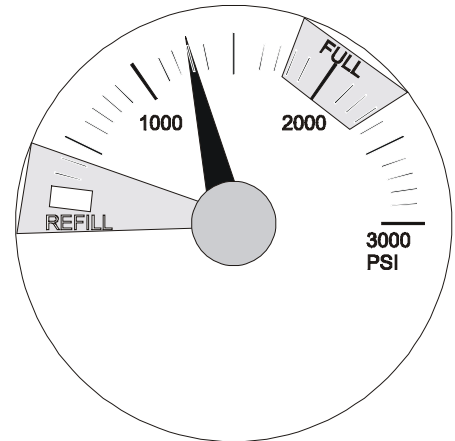
57. a. The pressure indicated on this oxygen gauge is \_\_\_\_\_ psi (pounds per square inch).

[4b]



b. The pressure indicated on this oxygen gauge is \_\_\_\_\_ psi (pounds per square inch).

[4b]



58. At what rate is this oxygen flowing? \_\_\_\_\_

[4a]

