Math 1000, Exam #2, Summer 2013 Name KEY

Instructions: You should show work on all problems. If you used a calculator to compute the values, you should indicate that on the problem (this is more appropriate on some problems than others). If the specific problem says to do the problem by hand, you will not receive full credit for only an answer. You may use decimal places on any problems that begin with decimal places, or which involve the metric system. Round to two decimal places unless otherwise indicated. All dollar values should be rounded to the nearest penny.

1. Suppose that a patient's insurance has a $250 deductible. It covers doctor's visits with a $15 copay, and other procedures at 80%, with the patient responsible for the remaining 20% (once the deductible has been met). At the present visit, he has already paid $200 of his deductible. In addition to the visit, a blood test, costing $240 is ordered as part of the examination. (20 points)
   a. How much money does the patient owe on the blood test?

   $38 + $50 = $88

   b. How much money does the patient owe for the doctor's visit?

   $15

   c. How much should the patient pay altogether?

   $103

   d. How much should the doctor bill the insurance company?

   $152

   190 x .8 = 152
   190 x .2 = 38

   250 ded.
   − 200 paid
   50 left

   240 blood test
   − 50 ded.
   190 left

2. Using the information provided, complete the table on the next page. How much is the total price of the supply order submitted if you must order the following products: 10 rolls of packing tape, one ream of paper, one box of snacks for the nurses lounge, 20 rolls of cloth tape, 1 case (12 individual boxes) of bandages (mixed sizes), and 6 jars of disinfectant? (25 points)

   According to the supply catalog, you've learned that one roll of packing tape is $6.50 apiece; one ream of paper is $35.00; one box of mixed snack packs is $23.50; one roll of cloth tape is $4.39; one package of mixed bandages is $5.75, but a full case earns a 10% discount; and one jar of hospital grade disinfectant is $13.22.

# of Items	Description	Unit Price	Total Price
10	packing tape	6.50	65.00
1	paper	35.00	35.00
1	Snacks	23.50	23.50
20	cloth tape	4.39	87.80
12	bandages mixed	5.75	69.00
6	disinfectant	13.22	79.32
		Subtotal	359.62
		Credits discounts	6.90 case discount
		New Subtotal	352.72
		Tax 6.5%	22.93
		Shipping (Flat rate: $12.95)	12.95
		Total Price	388.60

3. Write the abbreviations for the following terms. (2 points each).
   a. Deciliter

      dl

   b. Dekameter

      dam

   c. Microgram

      mcg

   d. Drops

      gtt

   e. Miles

      mi

   f. Cups

      c

4. Write out the word(s) for each of the following abbreviations or symbols. (2 points each)
   a. mcl

      micro liter

   b. kg

      kilogram

   c. tbsp.

      tablespoon

   d. ʒ

      dram (apothecary)

   e. cm

      centimeter

   f. ft

      feet

5. Make the following conversions (within in the same system). (5 points each)

a. 0.6 mg is equivalent to 600 mcg. $\frac{.6\ mg}{1} \cdot \frac{1000\ mcg}{1\ mg} =$

b. 75 mm is equivalent to 7.5 cm. $\frac{75\ mm}{1} \cdot \frac{1\ cm}{10\ mm} =$

c. 250 mg/L is equivalent to 2.5 mg/cl. $\frac{250\ mg}{1\ L} \cdot \frac{1\ L}{100\ cl} =$

d. 1 mi is equivalent to 63,360 in. $\frac{1\ mi}{1} \cdot \frac{5280\ ft}{1\ mi} \cdot \frac{12\ in}{ft}$

e. 6' is equivalent to 2 yd. $\frac{6\ ft}{1} \cdot \frac{1\ yd}{3\ ft} =$

f. 720 gtt is equivalent to 12 tsp. $\frac{720\ gtt}{1} \cdot \frac{1\ tsp}{60\ gtt} =$

6. Write the following expressions in the appropriate apothecary notation. (3 points each)

a. 15 grains

gr xv

b. 40 ounces

℥ xl

7. Using the conversions in the table below between apothecary/U.S. Customary units and the metric system, make the following conversions. (These approximations are approximate. Round to one decimal place if needed.) (5 points each)

Metric	Apothecary	U.S Customary
5 ml		1 tsp
30 ml	1 ounce	1 ounce
1 liter		1 qt
2.5 cm		1 in
1 m		39 in
1 km		0.6 mi
60 mg	1 grain	
1 g	15 grains	
1 kg		2.2 lbs

a. 60 kg is equivalent to 132 lbs. $\frac{60\text{kg}}{1} \cdot \frac{2.2\text{lbs}}{1\text{kg}} =$

b. 5,400 seconds is equivalent to 1.5 hrs. $\frac{5{,}400\text{ sec}}{1} \cdot \frac{1\text{ min}}{60\text{ sec}} \cdot \frac{1\text{ hr}}{60\text{ min}}$

c. 12 in is equivalent to 300 mm. $\frac{12\text{ in}}{1} \cdot \frac{2.5\text{ cm}}{1\text{ in}} \cdot \frac{10\text{mm}}{1\text{ cm}} =$

d. 6 oz is equivalent to 180 ml. $\frac{6\text{ oz}}{1} \cdot \frac{30\text{ml}}{1\text{ oz}} =$

8. If a doctor tells you the patient's body temperature has dropped to 84°F and you can safely warm him by only 1°C per 15 minutes, how long will it take to warm his body back up to "normal" body temperature of 98.6°F? [Hint: you will need to convert all your temperatures to one system to figure out how many increments of time you need. If you remember what body temp is in Celsius, I suggest using that.] (10 points)

$C = (F - 32) \times \frac{5}{9} \approx 29°C$ vs. body temp 37°C

$37 - 29 = 8°$ $8 \times 15 = 120$ min. $\approx$ 2 hours.

9. Write the following expressions in scientific notation. You may round all figures to two significant figures. (3 points each)

a. 0.00460

4.6×10^{-3}

b. 12,009

1.2×10^{4}

c. 876,092,356,000 8.8×10^{11}

10. Write each of the expressions in standard decimal form (not in scientific notation). (3 points each).

a. 7.1×10^{-8}

.000000071

b. 6.22×10^{9}

6,220,000,000

11. Simplify the expression and write your final answer in scientific notation. Use two significant figures. (5 points each)

a. $(7.25 \times 10^{3})^{4}$

2.76×10^{15}

rounds to 2.8×10^{15}

b. $(1.1 \times 10^{-2}) \div (8.9 \times 10^{-4})$

1.2×10^{1}

12. Calculate the following problems and write your answers to the indicated number of significant digits. You may use your calculator. (4 points each)

a. (5 sig fig) $567.009 + 2.34432 + 78.099 =$

647.45

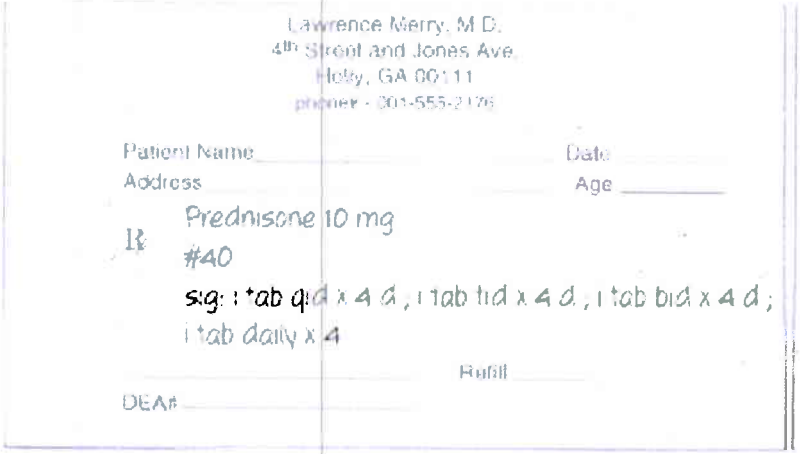
b. (1 sig fig) $2.103 \div 0.03 =$

70

c. (2 sig fig) $13.25 \times 2.2 =$

29.

13. Below is a doctor's order taken from our textbook. Write out what the doctors is asking you to do in words. Use complete sentences. Be sure to use all the abbreviations given in your description. (10 points)



Lawrence Merry, M.D.
4th Street and Jones Ave.
Holly, GA 00111
phone - 301-555-2176

Patient Name _____ Date _____
Address _____ Age _____

℞ Prednisone 10 mg
#40
sig: 1 tab qid x 4 d, 1 tab tid x 4 d, 1 tab bid x 4 d; 1 tab daily x 4

Refill _____

DEA# _____

Prescription:

10 mg Prednisone
40 tablets

directions: 1 tablet 4 times per day for 4 days
then 1 tablet 3 times per day for 4 days
then 1 tablet 2 times per day for 4 days
then 1 tablet daily for 4 days