Section 1–Mathematics and Dosage Calculations

Unit 1–Numerals and Fractions

1. Express the following as Arabic or Roman numerals:

a) 15
b) 25
c) 50
d) IV
e) XIX
f) XVI

2. Express the following mixed numbers as improper fractions:

a) 5 1/2
b) 3 1/3
c) 8 1/6
d) 6 7/8
e) 4 2/3
f) 2 1/2

3. Express the following improper fractions as mixed numbers:

a) 9/6
b) 7/5
c) 6/4
d) 15/2
e) 8/6
f) 3/2

4. Reduce the following fractions to lowest terms:

a) 48/96
b) 75/100
c) 33/66
d) 60/100
e) 14/56
f) 3/15

5. Add the following fractions:

a) 1/8 + 3/4
b) 22 14/12 + 2 1/6
c) 1/7 + 3/21
d) 9 1/3 + 31 2/3
e) 1/3 + 1/9
f) 102 5/6 + 98 1/3

6. Subtract the following fractions:

a) 3/4 – 1/8
b) 21 3/9 – 5 5/9
c) 11/12 – 5/6
d) 31 2/3 – 9 1/3
e) 25/75 – 16/150
f) 14 3/5 – 5 6/10

7. Multiply the following fractions:

a) 4/9 · 1/8
b) 365 · 12/30
c) 45 · 1/5
d) 6 11/12 · 7/3

8. Divide the following fractions:

a) 1/150 ÷ 1/100
b) 3/4 ÷ 8/9
c) 2/3 ÷ 5 1/2
d) 56 ÷ 9/20

Unit 2–Decimal Fractions

Directions. Correctly work the following problems or fill in the blanks:

1. All the numbers to the left of the decimal point are _____ numbers.

2. All the numbers to the right of the decimal point are _____ or _____.

3. The value of each place left of the decimal point is _____ times that of the place to its right.

4. The value of each place right of the decimal point is _____ of the value of the place to its left.

5. Read the following fractions, decimal fractions, whole numbers, and decimal fractions. Write your answers on the spaces provided.

a) 5/10 _____

b) 10/1000 _____

c) 0.50 _____

d) 0.00005 _____

e) 2.25 _____

f) 8.75 _____

6. Express the following as decimal fractions:

a) 1/3 _____

b) 1/4 _____

7. Express the following as common fractions:

a) 0.5 _____

b) 0.00005 _____

8. Add the following:

a) 0.5 + 0.5 _____

b) 0.98 + 0.76 _____

9. Subtract the following:

a) 0.6 − 0.08 _____

b) 9.123 − 6.055 _____

10. Multiply the following:

a) 66.66 × 3.33 _____

b) 1.1 × 100 _____

11. Divide the following:

a) 0.018 ÷ 9 _____

b) 0.04 ÷ 10 _____

c) 86 ÷ 0.43 _____

d) 60 ÷ 0.012 _____

e) 0.06 ÷ 0.6 _____

f) 0.49 ÷ 0.007 _____

Unit 3–Ratio and Proportion

Directions. Place the correct answer in the space provided:

1. Express the following numbers as a ratio, a quotient, a fraction, or as a decimal:

	Ratio	***Quotient***	***Fraction***	***Decimal***
a) 1/25	_____	_____	_____	_____
b) 12 : 6	_____	_____	_____	_____
c) 33 : 66	_____	_____	_____	_____
d) 1 : 50	_____	_____	_____	_____
e) 25/75	_____	_____	_____	_____

2. Solve for x in each of the following:

a) $1/2 : x = 1 : 8$ $x =$ _____
b) $9 : x = 5 : 300$ $x =$ _____
c) $1/100 : 1/10 = x : 6$ $x =$ _____
d) $1/4 : 500 = x : 1000$ $x =$ _____
e) $36 : 12 = 1/100 : x$ $x =$ _____
f) $6 : 24 = 0.75 : x$ $x =$ _____
g) $x : 600 = 4 : 120$ $x =$ _____
h) $0.7 : 70 = x : 1000$ $x =$ _____
i) $6 : 12 = 1/4 : x$ $x =$ _____
j) $0.4 : 0.2 = 6 : x$ $x =$ _____
k) $0.2 : 4 = 25 : x$ $x =$ _____
l) $4 : 5 = x : 10$ $x =$ _____
m) $25 : x = 5 : 10$ $x =$ _____

3. Define the following terms:

a) proof: _____
b) means: _____
c) extremes: _____
d) positive: _____
e) negative: _____
f) proportion: _____
g) ratio: _____