Experiment 1: Exercises (4 point each, 100 points total)

Name: Key Sec: _____ Date: _____

1. Determine the number of significant figures in each of the following measured numbers.

a.	0.700 m	3	f.	0.13005 mg	5
b.	80.0 L	3	g.	120 s	2
c.	704.5230 s	7	h.	0.00050 m	2
d.	0.020000 mol	5	i.	43.70 N	4

2. Perform each of the following mathematical operations. Express your answers properly. Assume all numbers are measured numbers.

Additions:

a. 675.00 + 0.050 = 675.050 → 675.05

b. 9 + 0.09 + 1.2 = 10.29 → 10

c. 16.102 + 3 + 0.17 = 19.272 → 19

d. 27.54 + 1.29 + 2.01 = 30.84

e. 13.09 + 10.00 + 9.0 = 32.09 → 32.0

f. 0.0 + 0.20 + 0.005 + 1.00 = 1.205 → 1.2

g. 0.0007 + 0.0047 + 2.4000 + 0.0007 = 2.4061 → 2.406

h. 25.02 + 0.000 + 0.03 + 0.000 = 25.050 → 25.05

i. 0.40 + 0.007 + 0.00 + 0.0007 = 0.4077 → 0.41

j. 300 + 40 + 0.2 + 0.04 = 340.24 → 340

Subtractions:

a. 25.37 − 12.000 = 13.370 → 13.37

b. 19.97 − 6.002 = 13.968 → 13.97

c. 1000.0 − 200 = 800.

d. 27.20 − 14.552 = 12.648 → 12.65

e. 0.0070 − 0.00007 = 0.00693

f. 20 − 0.000 = 20.000 → 20

g. 22.0 − 7.75 = 14.25 → 14.3

h. 2.0000 − 0.00000 = 2.00000

Multiplications:

a. 2.67 × 3.0 = 8.01 → 8.0

b. 0.000 × 0.0023 = 0 × 0.0023 → 0

c. 0.00000000 × 0.0000 = 0.0000 → 0.0000

d. 0.0003 × 0.0000 × 0.0000 = 0.0000

e. 0.400 × 5.00 × 4.00 = 8.00 → 8.0

f. 0.0 × 0.0 × 2.0 = 0.0

g. 0.000 × 0.0003 × 0.0003 = 0.0000

h. 0.000 × 0.003 × 0.0 = 0.0000 → 0.0000

i. 0.00 × 0.00 × 1.00 = 0.0000

j. 0.5 × 0.07 × 0.0003 = 0.00003 → 0.00

Exercises

1. 0.700 m
2. 80.0 L
3. 704.5230 s
4. 0.020000 mol
5. 0.0005 mg
6. 120 s
7. 0.00050 m
8. 43.70 N

Additions

a. 675.00 + 0.050 = 675.050 → 675.05
b. 9 + 0.09 + 1.2 = 10.29 → 10
c. 16.102 + 3 + 0.17 = 19.272 → 19
d. 27.54 + 1.29 + 2.01 = 30.84
e. 13.09 + 10.00 + 9.0 = 32.09 → 32.0
f. 0.0 + 0.20 + 0.005 + 1.00 = 1.205 → 1.2
g. 0.0007 + 0.0047 + 2.4000 + 0.0007 = 2.4061 → 2.406
h. 25.02 + 0.000 + 0.03 + 0.000 = 25.050 → 25.05
i. 0.40 + 0.007 + 0.00 + 0.0007 = 0.4077 → 0.41
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Subtractions

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Multiplications

a. 2.67 × 3.0 = 8.01 → 8.0
b. 0.000 × 0.0023 = 0 × 0.0023 → 0
c. 0.00000000 × 0.0000 = 0.0000 → 0.0000
d. 0.0003 × 0.0000 × 0.0000 = 0.0000
e. 0.400 × 5.00 × 4.00 = 8.00 → 8.0
f. 0.0 × 0.0 × 2.0 = 0.0
g. 0.000 × 0.0003 × 0.0003 = 0.0000
h. 0.000 × 0.003 × 0.0 = 0.0000 → 0.0000
i. 0.00 × 0.00 × 1.00 = 0.0000
j. 0.5 × 0.07 × 0.0003 = 0.00003 → 0.00