

EXERCISE 1

Cutting and Bending of Glass Tubing

OBJECTIVES:

1. Safety Rules, view a video tape on safety
2. Familiarize the student with laboratory equipment
3. Introduce students to glass cutting and bending

Student should practice safety rules during all laboratory periods. Each student will be assigned a locker which contains the essential laboratory equipment. Additional equipment may be checked out from the stock room.

Glass Cutting and Bending -

Equipment

1. burner
2. triangular file
3. glass tubing

Procedure

To cut a piece of glass tubing, place the glass tubing on flat surface and make a deep scratch with a triangular file. Hold the tubing so that your thumbs are placed on the side of the tubing away from the scratch, and break the tubing by bending it, using your thumbs as levers.

To bend a piece of glass tubing, hold the tubing in the hottest part of the burner flame. Rotate the tubing until it gets soft; then remove it from the flame and bend to the desired angle.

SIGNIFICANT FIGURES

NAME _____

SECTION _____

Section I *

How many significant figures are there in the following numbers?

a. 1.234 _____

b. 1.2340 _____

c. 1.234×10^{-3} _____

d. 1.2340×10^{-3} _____

e. 1234 _____

f. 12340 _____

g. 1.2340×10^{-4} _____

Section II *

Complete the following arithmetic operations, and express the answers with the correct number of significant figures.

PART 1

a.
$$\begin{array}{r} 1.421 \\ +0.4372 \\ \hline \end{array}$$

b.
$$\begin{array}{r} 0.0241 \\ +0.11 \\ \hline \end{array}$$

c.
$$\begin{array}{r} 0.14 \\ +1.2243 \\ \hline \end{array}$$

d.
$$\begin{array}{r} 760.0 \\ + 0.011 \\ \hline \end{array}$$

PART 2

a.
$$\begin{array}{r} 1.0123 \\ - 0.002 \\ \hline \end{array}$$

b.
$$\begin{array}{r} 123.69 \\ - 20.1 \\ \hline \end{array}$$

c.
$$\begin{array}{r} 463.231 \\ - 14.0 \\ \hline \end{array}$$

d.
$$\begin{array}{r} 47.2 \\ - 0.01 \\ \hline \end{array}$$

Section III *

PART 1

Multiply the following. Express your answers to the correct number of significant figures.

$$\begin{array}{r} \text{a. } 42.3 \\ \times 2.61 \\ \hline \end{array} \qquad \begin{array}{r} \text{b. } 0.61 \\ \times 42.1 \\ \hline \end{array}$$

PART 2

Divide the following numbers. Express your answers to the correct number of significant figures.

a. $46.1 \div 1.21 =$ _____

b. $23.2 \div 4.1 =$ _____

FINAL EXERCISE

NAME _____ SECTION: _____ DATE _____

Complete the following calculations. Express your answers to the correct number of significant figures.

a.	$\begin{array}{r} 2.314 \\ +1.12 \\ \hline \end{array}$	b.	$\begin{array}{r} 1.41 \\ \times 1.1 \\ \hline \end{array}$	c.	$\begin{array}{r} 760.2 \\ - 1.111 \\ \hline \end{array}$	d.	$\begin{array}{r} 2.220 \\ \times 1.0 \\ \hline \end{array}$	e.	$\begin{array}{r} 2.322 \\ +1.427 \\ \hline \end{array}$	f.	$\begin{array}{r} 760. \\ - 0.12 \\ \hline \end{array}$
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g. $1.44 \div 1.2 =$ _____

h. $1000.0 \div 10 =$ _____

i. $44.44 \div 11.0 =$ _____