

## Scientific Notation/Significant Digits Worksheet 1

### 1. Convert each of the following into scientific notation.

a) 3427	$3.427 \times 10^3$	j) 0.0000455	$4.55 \times 10^{-5}$
b) 0.00456	$4.56 \times 10^{-3}$	k) 2205.2	$2.2052 \times 10^3$
c) 123,453	$1.23453 \times 10^5$	l) $30.0 \times 10^{-2}$	$3.00 \times 10^{-1}$
d) 172	$1.72 \times 10^2$	m) $0.982 \times 10^{-3}$	$9.82 \times 10^{-4}$
e) 0.000984	$9.84 \times 10^{-4}$	n) 0.0473	$4.73 \times 10^{-2}$
f) 0.502	$5.02 \times 10^{-1}$	o) 650,502	$6.50502 \times 10^5$
g) $3100.0 \times 10^2$	$3.1000 \times 10^5$	p) $3.03 \times 10^{-1}$	$3.03 \times 10^{-1}$
h) $0.0114 \times 10^4$	$1.14 \times 10^2$	q) $20.4 \times 10^5$	$2.04 \times 10^6$
i) 107.2	$1.072 \times 10^2$	r) $1000 \times 10^{-3}$	1.000

### 2. Determine the number of significant figures in each of the following:

a) 3427	4	g) $3100.0 \times 10^2$	5	m) $0.982 \times 10^{-3}$	3
b) 0.00456	3	h) $0.0114 \times 10^4$	3	n) 0.0473	3
c) 123,453	6	i) 107.2	4	o) 650,502	6
d) 172	3	j) 0.0000455	3	p) $3.03 \times 10^{-1}$	3
e) 0.000984	3	k) 2205.2	5	q) $20.4 \times 10^5$	3
f) 0.502	3	l) $30.0 \times 10^{-2}$	3	r) $1000 \times 10^{-3}$	4

### 3. Convert each into decimal form.

a) $1.56 \times 10^4$	15,600	e) $0.00259 \times 10^5$	259
b) $0.56 \times 10^{-2}$	0.0056	f) $13.69 \times 10^{-2}$	0.1369
c) $3.69 \times 10^{-2}$	0.0369	g) $6.9 \times 10^4$	69,000
d) $736.9 \times 10^5$	73,690,000		

4. Calculate the following. Give the answer in correct scientific notation.

$$\text{a) } \frac{3.95 \times 10^2}{1.5 \times 10^6} = 2.6 \times 10^{-4}$$

$$\text{b) } \frac{4.44 \times 10^7}{2.25 \times 10^5} = 1.97 \times 10^2$$

$$\text{c) } \frac{1.05 \times 10^{-26}}{4.2 \times 10^{56}} = 2.5 \times 10^{-83}$$

$$\text{d) } \frac{6.022 \times 10^{23}}{3.011 \times 10^{-56}} = 2.000 \times 10^{79}$$

$$\text{e) } (3.5 \times 10^2)(6.45 \times 10^{10}) = 2.2 \times 10^{13}$$

$$\text{f) } (4.50 \times 10^{-12})(3.67 \times 10^{-12}) = 1.65 \times 10^{-23}$$

$$\text{g) } (2.5 \times 10^9)(6.45 \times 10^4) = 1.6 \times 10^{-14}$$

$$\text{h) } (6.88 \times 10^2)(3.45 \times 10^{-10}) = 2.37 \times 10^{-7}$$

5. Round each of the following to 3 significant figures.

$$\text{a) } 77.0653 \quad 77.1$$

$$\text{b) } 6,300,278.2 \quad 6,300,000$$

$$\text{c) } 0.00023350 \quad 0.000234$$

$$\text{d) } 10.2030 \quad 10.2$$

$$\text{e) } 2.895 \times 10^{21} \quad 2.90 \times 10^{21}$$

6. Calculate the answer, use the correct number of significant figures.

$$\text{a) } (0.32)(14.50)(120) = 5.6 \times 10^2$$

$$\text{b) } (24.1)/(0.005) = 5 \times 10^3$$

$$\text{c) } (3.9)(6.05)(420) = 9.9 \times 10^3$$

$$\text{d) } (14.1)/5 = 3$$