

Unit 1 Test Review
STEM Chemistry

Name Key

1. Complete the table below.

Symbol Notation	Atomic #	Mass Number	# Neutrons	# Protons	# Electrons	Charge
$^{132}_{54}\text{Xe}^{+6}$	54	132	78	54	48	+6
$^{198}_{79}\text{Au}^{+1}$	79	198	119	79	78	+1
$^1_1\text{H}^{+}$	1	1	0	1	0	+1
$^{108}_{33}\text{As}^{-3}$	33	108	75	33	36	-3
$^{247}_{97}\text{Bk}$	97	247	150	97	97	0
$^{66}_{22}\text{Ti}^{+2}$	22	66	44	22	19	+2

2. Calculate the average atomic mass for element X.

Isotope	Relative Abundance	Mass
67X	23.5 %	66.9887
68X	70.2	67.9964
69X	$100 - 23.5 - 70.2 = 6.3\%$	68.9089

$$A.M. = (0.235)(66.9887) + (0.702)(67.9964) + (0.063)(68.9089) =$$

67.8171

3. Put the following numbers in proper scientific notation:

- a. 402.0 4.020×10^2 b. 1034.22×10^{-5} 1.03422×10^{-2}
 c. 1020040 1.02004×10^6 d. 3.22 3.22×10^0

4. Round the following numbers to 3 significant digits:

- a. 0.0040566 4.06×10^{-3} b. 9003400 9.00×10^6
 c. 13.9987 1.40×10^1 d. 38.0020 3.80×10^1

5. Indicate how many significant digits each number has:

- a. 780900 4 b. 0.0049020 5
 c. 5.6600×10^{-3} 5 d. 80200000 3

6. A car is travelling 62 miles per hour. How many ft per second is this? $\text{mi} \rightarrow \text{ft}$, $\text{hr} \rightarrow \text{s}$

$$\frac{62 \text{ mi}}{1 \text{ hr}} \left(\frac{1 \text{ hr}}{60 \text{ min}} \right) \left(\frac{1 \text{ min}}{60 \text{ sec}} \right) \left(\frac{5280 \text{ ft}}{1 \text{ mi}} \right) = \frac{327360 \text{ ft}}{3600 \text{ sec}} = \boxed{91 \frac{\text{ft}}{\text{sec}}}$$