

CHAPTER 2 REVIEW WORKSHEET AND KEY

The Mole

- 1) How many zinc (Zn) atoms are contained in 5.16 moles of Zn?

- 2) How many moles of He are 221,000 He atoms?

- 3) How many atoms are contained in 0.98 moles of iron (Fe)?

- 4) How many moles of cesium are in 66.45 g Cs?

- 5) What is the mass (grams) of 2500. carbon atoms?

- 6) What is the mass (grams) of 6.52×10^{18} atoms of gold (Au)?

Isotopes

(IMPORTANT NOTE: X = Symbol, A=mass number, Z = atomic number)

Name	Atomic number	Mass number	# of protons	# of neutrons	X-A form	$\frac{A}{Z}X$ notation
Cobalt		60				
					I-131	
						3_1H
	26	59				
						${}^{99}_{42}Mo$
			11	24		
Strontium				52		
					U-235	
		134	55			
		19	9			
	79			118		
Copper				36		
			56	81		
					K-40	

KEY

The Mole

1) How many zinc (Zn) atoms in 5.16 moles of Zn?

3.11×10^{24} Zn atoms

2) How many moles of He are 221,000 He atoms?

3.67×10^{-19} moles He

3) How many atoms are contained in 0.98 moles of iron (Fe)?

5.9×10^{23} Fe atoms

4) How many moles of cesium are in 66.45 g Cs?

0.5000 moles Cs

5) What is the mass (grams) of 2500. carbon atoms?

4.986×10^{-20} g C

6) What is the mass (grams) of 6.52×10^{18} atoms of gold (Au)?

0.00213 g Au

Isotopes

Name	Atomic number	Mass number	# of protons	# of neutrons	X-A form	$\frac{A}{Z}X$ notation
Cobalt	27	60	27	33	Co-60	${}_{27}^{60}\text{Co}$
Iodine	53	131	53	78	I-131	${}_{53}^{131}\text{I}$
Hydrogen	1	3	1	2	H-3	${}_{1}^3\text{H}$
Iron	26	59	26	33	Fe-59	${}_{26}^{59}\text{Fe}$
Molybdenum	42	99	42	57	Mo-99	${}_{42}^{99}\text{Mo}$
Sodium	11	35	11	24	Na-35	${}_{11}^{35}\text{Na}$
Strontium	38	90	38	52	Sr-90	${}_{38}^{90}\text{Sr}$
Uranium	92	235	92	143	U-235	${}_{92}^{235}\text{U}$
Cesium	55	134	55	79	Cs-134	${}_{55}^{134}\text{Cs}$
Fluorine	9	19	9	10	F-19	${}_{9}^{19}\text{F}$
Gold	79	197	79	118	Au-197	${}_{79}^{197}\text{Au}$
Copper	29	65	29	36	Cu-65	${}_{29}^{65}\text{Cu}$
Barium	56	137	56	81	Ba-137	${}_{56}^{137}\text{Ba}$
Potassium	19	40	19	21	K-40	${}_{19}^{40}\text{K}$