

128

39. $p^+ + n^0$ - # of p^+ = charge of nucleus

43. electron < proton = neutron

44. $p^+ = e^-$

45. $89+$

46. $p^+ + n^0$

58. Same # of protons but different #'s on neutrons

59. Atomic # = # of p^+ + # of e^-

60. Mass # = $p^+ + n^0$

62. Superscript = mass # Subscript Atomic #

64. Yes - all have 12 p^+ but varying # of Neutrons

72.

atomic #	17	17	40	40
Mass #	35	37	90	92
Protons	17	17	40	40
Neutrons	18	20	50	52
Electrons	17	17	40	40

73.

	p^+	e^-	n^0
a	55	55	77
b	27	27	32
c	69	69	94
d	30	30	40

96.

Isotope	S-32	Ca-44	Zn-64	F-19	Ne-23
Atomic #	16	20	30	9	11
Mass #	32	44	64	19	23
p^+	16	20	30	9	11
n^0	16	24	34	10	12
e^-	16	20	30	9	11

77. $(106.905 \text{ amu} \cdot 152) + (108.905 \text{ amu} \cdot 48) = \boxed{107.86 \text{ AMU}}$

78. $(49.946 \text{ amu} \cdot 10435) + (51.941 \text{ amu} \cdot 8379) + (52.941 \text{ amu} \cdot 0950) + (53.939 \text{ amu} \cdot 0236) = \boxed{51.99 \text{ AMU}}$

- 121.
- a. physical
 - b. chemical
 - c. physical
 - d. chemical
 - e. physical

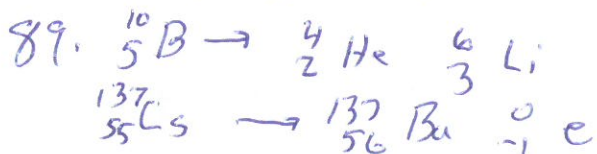
79. When an unstable nuclei spontaneously emits radiation to form a stable nuclei

82. α = helium nuclei ($+$), β electron ($-$), γ high energy (0)

83. $\alpha \frac{4}{2}\text{He}$ $\beta \frac{0}{-1}\text{e}$ $\gamma = \gamma$

Mass 4 0 0

Charge +2 -1 0



167.

36. 2.88×10^{21} points on a wave pass a given spot every second as the wave travels at the speed of Light.

38. Sunlight contains full spectrum where Neon only contains certain visible colors that correspond to electron transitions.

46. $c = \lambda \nu$

$3.00 \times 10^8 \text{ m/s} = (\lambda) (5.00 \times 10^{12} \text{ s}^{-1})$

$6.00 \times 10^{-5} \text{ m} \quad \text{IR}$

* 51. $E = h\nu \quad c = \lambda \nu \quad E = \frac{hc}{\lambda} \quad \frac{(6.626 \times 10^{-34} \text{ J}\cdot\text{s})(3.00 \times 10^8 \text{ m/s})}{1.13 \times 10^{-8} \text{ m}}$
 $\nu = \frac{c}{\lambda}$
 $1.64 \times 10^{-17} \text{ J}$

57. $E = \frac{hc}{\lambda} \quad 193.3 \text{ nm} \cdot \frac{1 \text{ m}}{10^9 \text{ nm}} = 1.93 \times 10^{-7} \text{ m}$
 $\frac{(6.626 \times 10^{-34} \text{ J}\cdot\text{s})(3.00 \times 10^8 \text{ m/s})}{1.93 \times 10^{-7} \text{ m}} = 1.03 \times 10^{-13} \text{ J}$

Don't need to convert from nm $\rightarrow$ m

60. energy level or principle quantum #

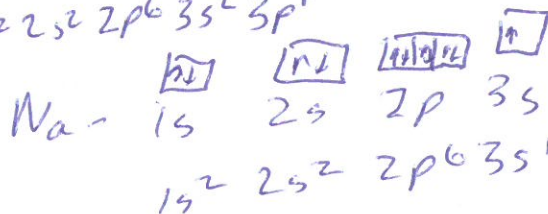
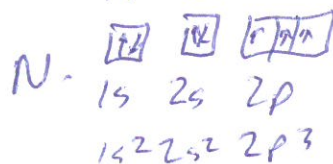
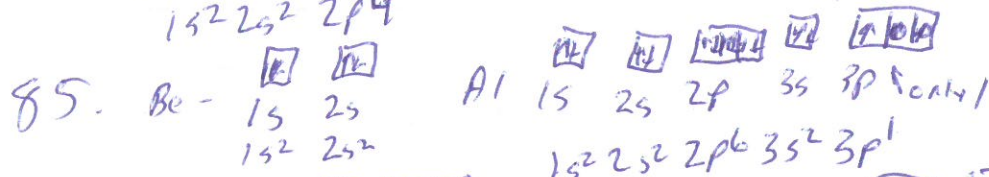
63. 3d region of space electrons occupy

66. Energy level 1 - 1 sublevel
 2 - 2 sublevels
 3 - 3 sublevels

74. wavelengths are so small they are undetectable

75. When measuring we adjust both the position + velocity of an electron

79. Acts as both a particle & wave



87. a. F b. Ca c. Nd d. Te e. Ma f. Br

88 d

94. a. 18 b. 32 c. 18 d. 8 97. a=1 b=3 c=5 d=7