

2 Do the following:

- Write the missing information about atoms / ions and indicate which ones are isotopes
- If average atomic mass (of the element in the table that has two isotopes) is 6.94, calculate their natural occurrence

Atom or ion	Z	A	# of			Electron Configuration					Lewis		
			p ⁺	n ⁰	e ⁻	Orbital diagram							
${}^6_3\text{A}$						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
${}^{31}_{15}\text{B}$						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
${}^{\square}_9\text{C}^-$				10		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
${}^{23}_{11}\text{D}^{\square}$					10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
${}^7_3\text{E}$						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Atom or ion	Z	A	# of			Electron Configuration					Lewis			
			p ⁺	n ⁰	e ⁻	Orbital diagram								
${}^6_3\text{A}$	3	6	3	3	3	$\uparrow\downarrow$	\uparrow						$\cdot\text{Li}$	
${}^{31}_{15}\text{B}$	15	31	15	16	15	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow$	\uparrow	\uparrow	\uparrow	$\cdot\ddot{\text{P}}\cdot$
${}^{19}_9\text{C}^-$	9	19	9	10	10	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow$				$\cdot\ddot{\text{F}}\cdot^-$
${}^{23}_{11}\text{D}^{\oplus}$	11	23	11	12	10	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow$				Na^+
${}^7_3\text{E}$	3	7	3	4	3	$\uparrow\downarrow$	\uparrow							$\cdot\text{Li}$

A and E are isotopes

$$6.94 = \frac{X \cdot 6 + (100 - X) \cdot 7}{100} = \frac{6X + 700 - 7X}{100} \rightarrow$$

$$\rightarrow 694 = 700 - X \Rightarrow X = 6\%$$

$$100 - X = 94\%$$

6% ${}^6\text{Li}$ and 94% ${}^7\text{Li}$

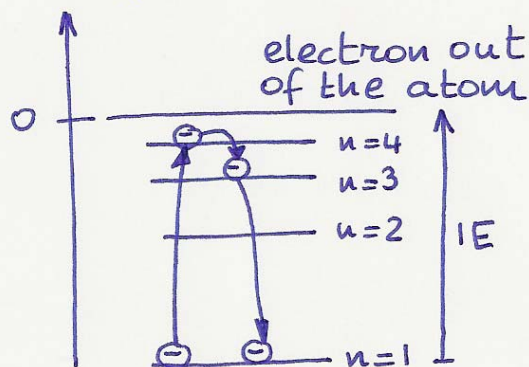
A hydrogen atom has its electron at ground state. That electron jumps to $n=4$ and later returns to their ground state performing two jumps. Look at the spectrum and determine:

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- which are the two jumps from $n=4$ to the ground state
- the jumps in which the electron takes energy
- the jumps in which the electron releases energy
- draw all the jumps and the ionization energy in a energy diagram



- (a) two jumps : $n=4 \rightarrow n=3$ (IR)
 $n=3 \rightarrow n=1$ (UV)
- (b) takes energy : $n=1 \rightarrow n=4$
- (c) releases energy : $n=4 \rightarrow n=3$ and $n=3 \rightarrow n=1$
- (d) energy



4	<p>Identify (indicating the number) the following elements in the periodic table below</p> <ul style="list-style-type: none"> a) the element with the symbol "S" b) the element with the symbol "F" c) the element with the symbol "K" d) the element with the symbol "Al" e) the element with the symbol "C" f) the element of the third period that forms a three positive ion g) the element of the second period that forms a mononegative ion h) the element of the third period that forms a monopositive ion i) the element of the second period that forms a two negative ion j) the element with the electron configuration $1s^2 \dots 4s^2 4p^5$ k) the element with the electron configuration $1s^2 \dots 3s^2$ 																																	
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19	20						21																											
<p>a) 16 b) 9 c) 19 d) 13 e) 6</p> <p>f) 13 g) 9 h) 11 i) 8 j) 21 k) 12</p>																																		

