











	QUESTION		
P	In alpha decay, the nucleus looses the equivalent of 2 protons and the element's atomic number (a.n.) is decreased by 2, producing another element whose (a.n.) is 2 less.		
	What is the change in atomic number of a nucleus that results from beta decay?		
	A. +1 Emitted Particles:		
Ε	B. +2 Mass emitted		
	C. −1 D −2		
	E. 0 <b>&gt;</b> beta particle -1 amu		























## **QUESTION**

Two stable isotopes of an element have isotopic masses of 10.0129 amu and 11.0093 amu. The atomic mass is 10.81. Which isotope is more abundant?

- A) There is insufficient information to answer the question.
- B) There are equal amounts of each isotope.
- C) The isotope with a mass of 10.0129 amu is more abundant.
- D) The isotope with a mass of 11.0093 amu is more abundant.



























CHEMISTRY of the Atom				
Atomic Mass of Carbon:				
	Exact Mass	% Occurence		
	12.00000	98.98		
	13.00335	1.011		
	14.00	negligible		
<ul> <li>What is the "weighted" atomic mass?</li> <li>12.00000 x 98.98/100 + 13.00335 x 1.011 = 11.8776 + 0.13146 = 12.009</li> </ul>				



None of the isotopes has an exact mass of 12.011. https://forms.gle/P2aUryDgdSGanXcB8

## Answer

The average mass of a carbon atom is 12.011. Assuming you were able to pick up only one carbon unit, the chances that you would randomly get one with a mass of 12.011 is

A. 0%.

- B. 0.011%.
- C. about 12%.
- D. 12.011%.
- E. greater than 50%.









 The energy produced in "nuclear" reactions is one million (10<sup>6</sup>) times larger than "chemical" reactions per atom.





## **QUESTION** When a <sup>235</sup>U nucleus absorbs a high energy neutron and undergoes nuclear fission, it undergoes a chain reaction t

undergoes nuclear fission, it undergoes a chain reaction that produces <sup>141</sup>Ba, plus <sup>92</sup>Kr, and 3 neutrons.

$$\begin{array}{c} 35U + 1n \rightarrow 236U \rightarrow 141Ba + 92Kr + 31n\\ 92 & 92 & 56 \end{array}$$

When a <sup>235</sup>U nucleus absorbs a slow moving, low energy neutron, it produces 2 neutrons, plus <sup>94</sup>Sr. What is the other nuclide produced?

A. <sup>141</sup>Ba

- B. <sup>140</sup>Ba
- C. <sup>91</sup>Kr D. <sup>140</sup>Xe
- E. <sup>141</sup>Xe

http://physics.bu.edu/~duffy/sc546\_notes11/fission.html























