Clicker Question

Suppose that normal living tuna contains a certain nucleus that has a half-life of 10 years. Once canned the nuclei begin to decay. If we find a can that has half the expected amount of the nucleus, how old is the can?

A). We can not tell

B). 1 year

C**). 10 years**

D). 20 years

E). ½ year

Clicker Question

After three half-lives, what fraction of the original material is left?

A). 1/2

B**). (1/2)·(1/2)·(1/2) = 1/8**

C). (1/2)·(1/2) = 1/4

D). (1/2)·(1/2)·(1/2) ·(1/2)·(1/2)·(1/2) = 1/64

E). $2^3 = 8$

Clicker Question

The equation for fraction remaining is

$$f = \frac{A}{B} = \left(\frac{1}{2}\right)^{C}$$

Which letter in the above equation is the number of half-lives?

A). A

B). B

C). C

Clicker Question

DATA: Take the half-life of 14-C to be 6000 years.

If we find a sample of old bone that has (1/16) the normal amount of 14-C found in living bone, how old is the bone?

A). 6000 years

B). 12,000 years

C**). 24,000 years**

D). (1/16) years

E). $(1/6000)^4$ years

Clicker Question

When rock forms it has almost no 40-Ar in it. However, the radioactive isotope 40-K, which does form in rock, decays to 40-Ar with a half-life of 1.3 billion years.

Suppose we find a rock with a ratio of 40-Ar to 40-K of 1:1. How old is the rock?

A)0 years B) 1.3 billion years C) 2.6 billion years

D) 3.9 billion years E) It is not possible to have that ratio