

ABSOLUTE DATING WORKSHEET

Show work for all problems

NAME _____
DATE _____ HOUR _____

Use the general decay curve to answer the following:

1. A fossil log sample was sent to the lab for a radioactive determination. The $^{14}\text{C} \rightarrow ^{14}\text{N}$ radioactive decay was used. Of the original 240 grams of ^{14}C only 15 grams of ^{14}C remain.

How many half lives has this sample been through? _____

What is the age of the log? _____

How many grams of ^{14}N must be in the log?

2. Gneiss was submitted for radioactive analysis. Certain minerals in the gneiss were found to contain ^{40}K . The $^{40}\text{K} \rightarrow ^{40}\text{Ar}$ method was used. The results of the analysis found $^{40}\text{K} = 20\text{g}$ and $^{40}\text{Ar} = 300\text{g}$.

What is the D/P ratio? _____

How many half lives has this sample been through? _____

What is the age of the gneiss? _____

Is there a problem with this answer? Explain _____

3. A sample of basalt was analyzed using the $^3\text{H} \rightarrow ^3\text{He}$ method (one half life= 12.3 years). Results of the granite are $^3\text{H} = 2\text{g}$ and $^3\text{He} = 100\text{g}$.

What is the D/P ratio? _____

What is the age of the basalt? _____

4. A sample of gneiss was analyzed using the $^{235}\text{U} \rightarrow ^{207}\text{Pb}$ method.
 $^{235}\text{U} = 2\text{g}$ and $^{207}\text{Pb} = 12\text{g}$

What is the D/P ratio? _____

What is the age of the gneiss? _____

5. A rock sample is analyzed using the $^{14}\text{C} \rightarrow ^{14}\text{N}$ method. If the D/P ratio is 100, how old is the sample?

6. A sample of granite is analyzed using the $^{40}\text{K} \rightarrow ^{40}\text{Ar}$ method. Of the original 300 of potassium only 75 grams remain.

How many half lives has this granite been through? _____

How old is this sample? _____

What geologic era did this granite form in?