

Earth Systems 3209 Assignment Radiometric Dating

Name:

1. How many half-lives have elapsed if $1/64^{\text{th}}$ of the original sample remains?

- A) 4
- B) 5
- C) 6
- D) 7

2. A fossilized bone has been found that contains 4 grams of Carbon-14 isotopes. Given that its original mass was 256 grams and the half-life of Carbon-14 is 5,730 years, determine its age. Be sure to show all your workings.

3. You have $1/64^{\text{th}}$ of the original parent isotope left. Given that the half life of the parent isotope is 0.4 billion years, determine the age of the sample. Be sure to show all workings.

4. You have a 160 gram rock sample with a half life of 200,000 years and there is only 40 grams of parent isotope left. Determine the age of the sample. Be sure to show all workings.

5. A bone was found that had a mass of 265 grams. It contained 36 grams of its original Carbon-14 parent isotope when the sample was found. The half-life of Carbon-14 is 5,730 years. Determine its age. Show all your workings below.