

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

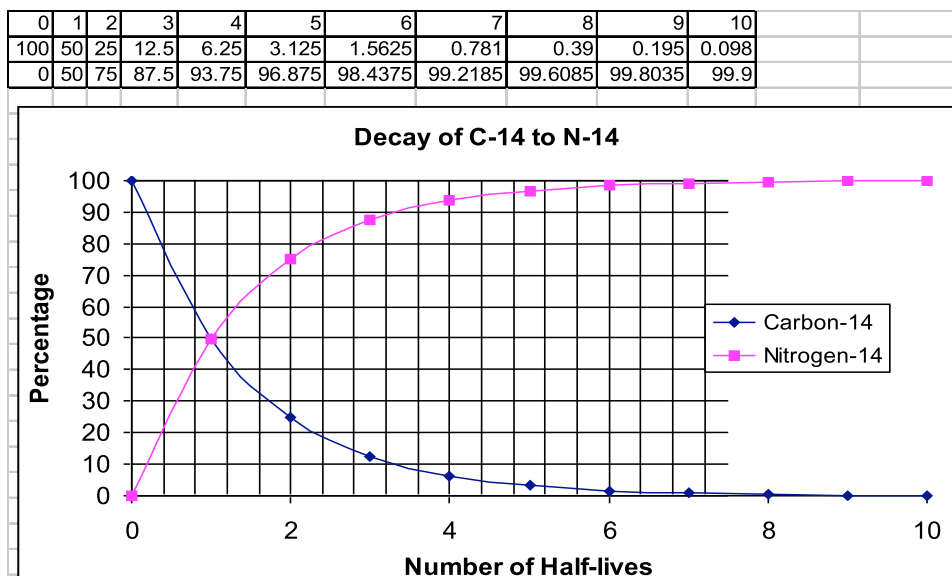
### Radioactive Dating

Using regular (non-scientific) numbers, write the half-life of each of the following materials (from your ESRTs):

1. Carbon<sup>14</sup>
2. Potassium<sup>40</sup>
3. Uranium<sup>238</sup>
4. Rubidium<sup>87</sup>

How to calculate age of an item using radioactive isotopes:

- a. Add the amount of parent material with the daughter product- this will equal the total amount of material that you started with.
- b. Find the percentage of parent material compared to the total material (parent ÷ total x 100).
- c. Find the number of half-lives by looking up the percentage on the decay chart below.



5. If a sample contains 50g of Carbon<sup>14</sup> and 50g of Nitrogen<sup>14</sup>, how many half-lives has it undergone?
  
6. If a sample contains 25g of Carbon<sup>14</sup> and 75g of Nitrogen<sup>14</sup>, how many half-lives has it undergone?

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7. If a sample contains 25g of Carbon<sup>14</sup> and 175g of Nitrogen<sup>14</sup>, how many half-lives has it undergone?
  
  
  
  
  
  
  
  
  
  
8. How old is a bone in which the Carbon<sup>14</sup> in it has undergone 3 half-lives?
  
  
  
  
  
  
  
  
  
  
9. What percent of Carbon<sup>14</sup> is left after 5 half-lives?
  
  
  
  
  
  
  
  
  
  
10. What happens to the amount of Nitrogen<sup>14</sup> as the Carbon<sup>14</sup> decays?
  
  
  
  
  
  
  
  
  
  
11. If a 20g of Carbon<sup>14</sup> has a half-life of 5,700 years, what would be the half-life of a 40g sample?