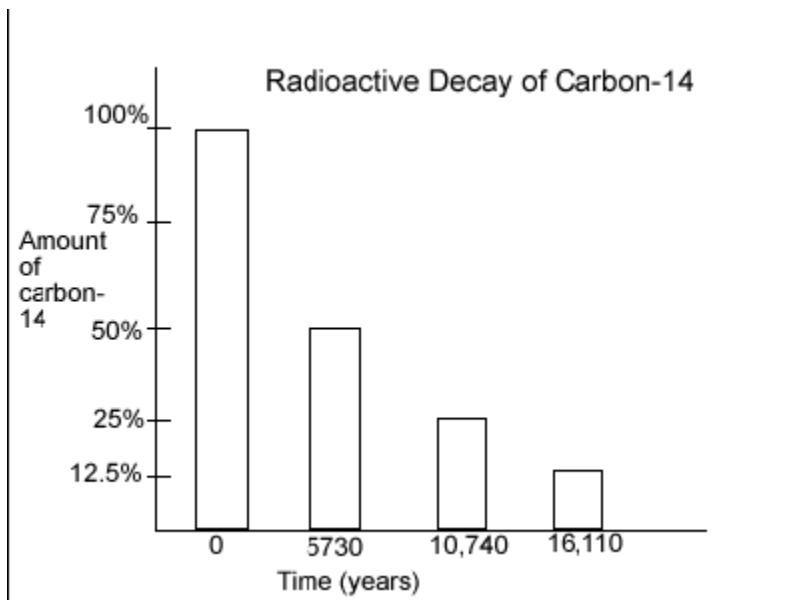


Name: _____ Date: _____ Class: _____ Assi.# _____

Half-life Worksheet

1. What is *radioactivity*?
2. What is *nuclear radiation*?
3. What is *half-life*?
4. If we start with 400 atoms of a radioactive substance, how many would remain after one halflife? _____
after two half-lives? _____ after three half-lives? _____ after four halflives? _____
5. If we start with 48 atoms of a radioactive substance, how many would remain after one halflife? _____
after two half-lives? _____ after three half-lives? _____ after four halflives? _____
6. If we start with 16 grams of a radioactive substance, how much will remain after three half-lives? _____
7. If we start with 120 atoms of a radioactive substance, how many will remain after three half-lives? _____
8. Which type of nuclear radiation (beta particles, gamma rays, or alpha particles) can be blocked by...
 - a) a piece of paper _____
 - c) a piece of lead _____
 - d) a large block of lead _____

Use the following graph to answer questions 9-12...



9. How long is a half-life for carbon-14?

10. If only 25% of the carbon-14 remains, how old is the material containing the carbon-14?

11. If a sample originally had 120 atoms of carbon-14, how many atoms will remain after 16,110 years? _____
12. If a sample known to be about 10,740 years old has 400 carbon-14 atoms, how many atoms were in the sample when the organism died? _____

Use the following chart to answer questions 13-16...

Radioactive Substance	Approximate half-life
Radon-222	4 days
Iodine-131	8 days
Radium-226	1600 years
Carbon-14	5,730 years
Plutonium-239	24,120 years
Uranium-238	4,470,000,000

13. If we start with 8000 atoms of radium-226, how much would remain after 3,200 years?

14. If we start with 20 atoms of plutonium-239, how many would remain after 48,240 years?

15. If we start with 60 atoms of uranium-238, how many remain after 4,470,000,000 years?

16. If we start with 24 atoms of iodine-131, how many remain after 32 days? _____