

Name: _____

Period: _____

Half Life Practice

1. Define half life:

2. Choose one (circle your answer):

A) Half life is an amount of time.

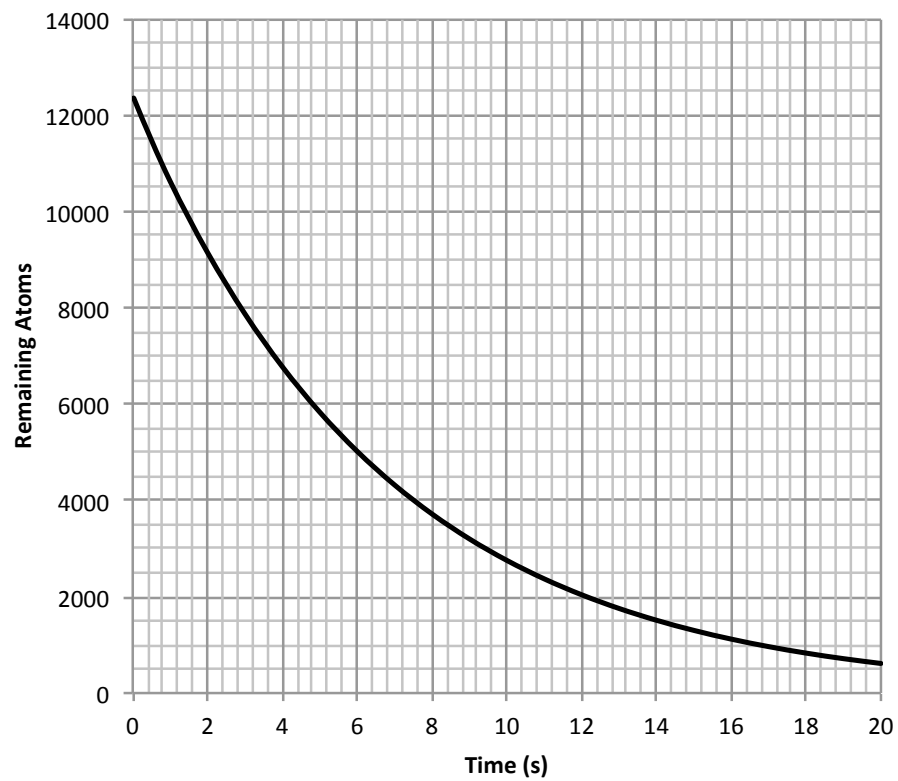
B) Half life is an amount of atoms.

C) Half life is an amount of grams.

Defend your choice.

3. Given the following graph, find the half life of this radioisotope.

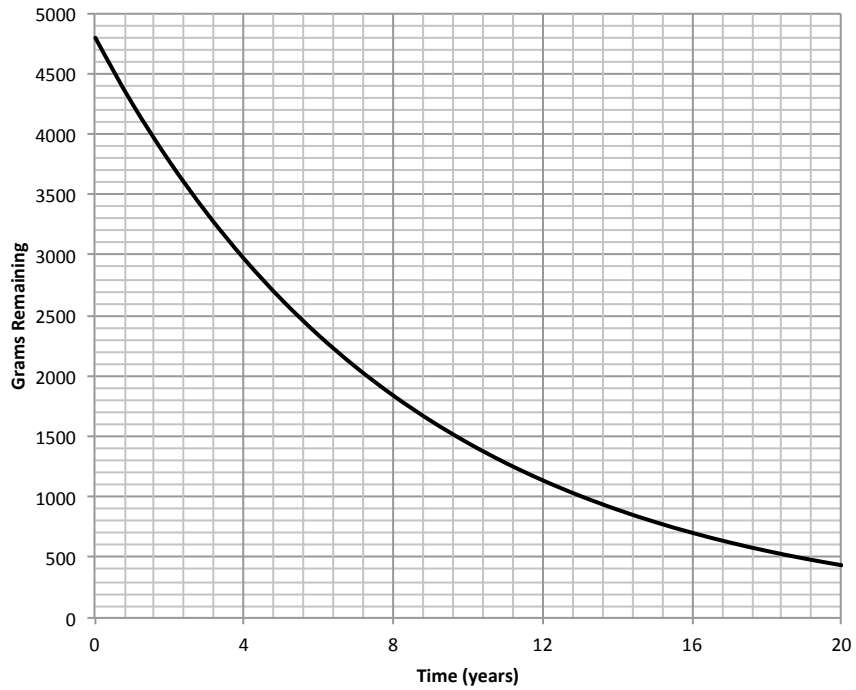
Problem 3



Justify your answer.

4. Given the following graph, find the half life of this radioisotope.

Problem 4



Justify your answer.

5. A particular radioactive isotope is found to have a half life of 3.5 seconds. Amalthea starts with a 512 gram sample of this isotope.

A) Use this information to complete the table below.

Number of Half Lives	Elapsed Time (s)	Grams Remaining
0	0	512
1	3.5	256
2	7.0	
3		
4		
5		
6		
7		
8		
9		
10		

B) Now make a graph of the elapsed times versus the grams remaining using a computer and attach your graph to this paper.

6. Here is some data for the radioactive decay of an isotope.

A) Graph this data using a computer.

B) Use the data and your graph to determine the half life of this isotope. Justify your answer.

(Attach your properly labeled graph to this paper.)

Time (years)	Atoms Remaining	Time (years)	Atoms Remaining
0	10,240	7	1779
1	7975	8	1386
2	6211	9	1079
3	4837	10	841
4	3767	11	655
5	2934	12	510
6	2285	13	397

7. Here is some data for the radioactive decay of an isotope.

A) Graph this data using a computer.

B) Use the data and your graph to determine the half life of this isotope. Justify your answer.

(Attach your properly labeled graph to this paper.)

Time (years)	Atoms Remaining	Time (years)	Atoms Remaining
0	51200	7	1546
1	31054	8	938
2	18835	9	569
3	11424	10	345
4	6929	11	209
5	4203	12	127
6	2549	13	77

Carbon-14 is used to find out how old any ancient once-living material is. Carbon-14 has a half life of 5730 years and a fresh modern sample has an activity of 14 disintegrations per gram per minute.

8. How many disintegrations per gram per minute will there be if a sample is

A) 5730 years old?

B) 11,460 years old?

C) four half lives old?

9. How old is a sample if

A) it has an activity of 3.5 disintegrations per gram per minute?

B) it has an activity of 1.75 disintegrations per gram per minute?

10. Use a computer to construct a graph showing the decay curve for a sample of Carbon-14 that began with 600 g and was buried about 52,000 years ago. Attach this graph to this paper.