Section 7.2

Use with textbook pages 302-309.

Radioactive decay

1. Define the following terms.

(a) half-life	
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- (b) decay curve _____
- (c) parent isotope _____
- (d) daughter isotope _____
- 2. Complete the following tables.

Sales and a second seco	Half-Life	Percent of parent isotope	Percent of daughter isotope
	0		
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Seria-Properties	3	***************************************	
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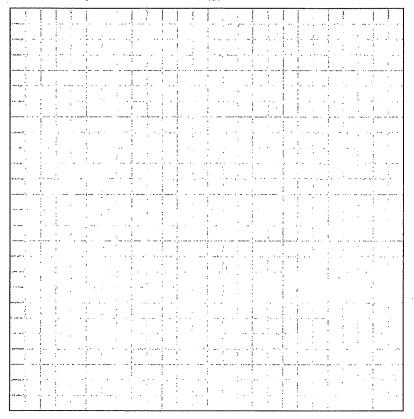
Half-Life	Fraction of parent isotope	Fraction of daughter isotope
0		
1	eri	AMANAN TANGAN BARAN MERINDA TAN MERIKAN CENSISAN SA
2	miller die gelaam dat 1960 en 2000 keer, Caracter gelaaf van 2000 jage 1966 <mark>en 1966 en 2019 geme</mark> er in van 2000 en	Andrew State and the American Street State And State Sta
3		70000000000000000000000000000000000000
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- **3.** A rock sample contains 120 g of a radioactive isotope. The radioactive isotope has a half-life of 5 years.
 - (a) Complete the following table.

Half-Life	Time (a)	Mass (g)
0	0	
1	5	and the control for the deal of the feet o
2	10	
3	15	2004001.02000000000000000000000000000000
4	20	1 mary 200 mary 120 and 120 and 120 mary 120 mar
5	25	**************************************

- (b) How much of the radioactive isotope if left after 25 years have passed? _____
- (c) How many half-lives have passed if there is only 15 g of the parent isotope left?
- (d) How many years have passed if there is only 7.5 g of the parent isotope left?

(e) Use the data in the table to graph a decay curve. Label the *x*-axis with Time (a) and the *y*-axis with Mass (g).



- 4. A rock sample contains 80 g of a radioactive isotope with a half-life of 20 years.
 - (a) Complete the following table.

Half-Life	Time (a)	Mass of parent isotope (g)	Mass of daughter isotope (g)
0	0	CONTRACTOR	The market is the standard on the Photogram of the Control of the standard of
1	20		
2	40	ON A STATE OF THE	OUT THE ALL HE STORM THE S
3	60	n da sira-a-hina, hirida isti shakisi na kabana a sira da kabana kabana ka da kabana a kaban cista sa kabana a Kabana a kabana sira	
4	80	And the second section of the section of t	ALEST AND THE THE STATE OF THE S
5	100	**************************************	

- (b) How much of the parent isotope is left after 4 half-lives?
- (c) How much of the parent isotope is left after 100 years? _____
- (d) How much of the daughter isotope is present after 60 years? _____
- (e) How much time has passed if 77.5 g of the daughter isotope is present? _____
- (f) What is the ratio of parent isotope to daughter isotope after 2 half-lives? _

Half-Life • MHR

Use with textbook pages 302-309.

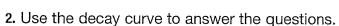
Calculating half-life

1.	A r	adioactive isotope has a half-life of 10 minutes.					
	(a)	What fraction of the parent isotope will be left after 30 minutes?					
	(b)	What percent of the parent isotope will be left after 40 minutes?					
	(c)	What fraction of the daughter isotope will be present after 20 minutes?					
	(d)	What percent of the daughter isotope will be present after 50 minutes?					
2.		36 g sample of a radioactive isotope decayed to 4.5 g in 36 minutes. How sch of the original parent isotope would remain after the first 12 minutes?					
3.		e half-life of a particular radioactive isotope is 8 hours. What percent of the parent tope would remain after 1 day?					
4.		adioactive isotope sample has a half-life of 4 days. If 6 g of the sample nains unchanged after 12 days, what was the initial mass of the sample?					
5.	a r	opose the ratio of a radioactive parent isotope to a stable daughter isotope within ock sample is 1:3. The half-life of the parent isotope is 710 million years. How old he rock sample?					
6.		ock sample was dated using potassium-40. Measurement indicates that 1/8 of original parent isotope is left in the rock sample. How old is the rock sample?					
7.	When a sample of lava solidified, it contained 28 g of uranium-238. If that lava sample was later found to contain only 7 g of U-238, how many years had passed since the lava solidified?						
8.		er 25 years, the number of radioactive cobalt atoms in a sample is reduced to $\frac{1}{32}$ the original count. What is the half-life of this isotope?					
9.		e half-life of Sr-90 is 28 years. If an 80 g sample of Sr-90 is currently in a sample of how much Sr-90 will be present in the soil 84 years later?					

Use with textbook pages 305-309.

Decay curves

- 1. Use the decay curve to answer the questions.
 - (a) What is the half-life of the isotope?
 - (b) How much of the parent isotope remains after 4 days? _____
 - (c) How much of the daughter isotope is present after 6 days?
 - (d) What fraction of the parent isotope remains after 8 days?
 - (e) How long does it take for the parent isotope to decay to 5 g?



- (a) What is the common isotope pair for this decay curve? _____
- (b) What is the half-life of the parent isotope?
- (c) What does the intersection of the two lines represent?
- (d) What fraction of the daughter isotope is present after 5.2 billion years have passed?
- (e) What is the ratio of parent isotope to daughter isotope after 2.6 billion years have passed?

