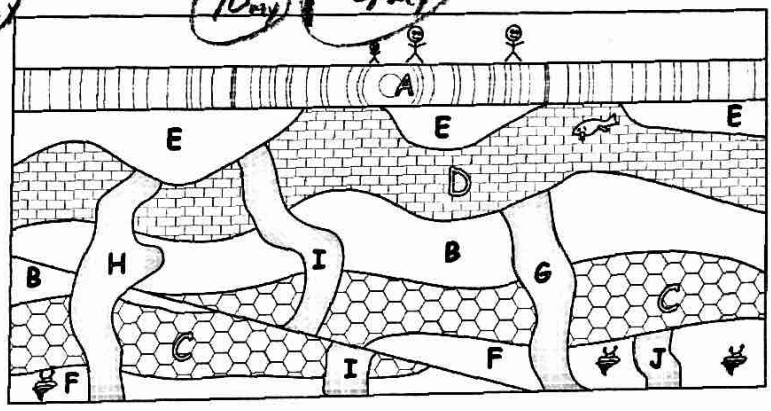
ESS 100 (Stapleton)
Quiz Version 5: Rock Dating

Name: Key

Organize the lettered rock samples from oldest to youngest. Then make a mark where the earthquake occurred in the sequence. The **half-life of the radioactive atoms in these samples is 6 million years.**

Oldest									Newest
F	J	C	B	G	D	I	H	E	A
	16my			13my		10my	4my		

Earthquake



1. Sample I contains 10 parent atoms and 53 daughter atoms.
   a. What percentage of those atoms are parent atoms? (approximately)
   16% 26% 36% 46% 56%

   b. Which of the following is closest to the age of Sample J?
   1my 4my 7my 10my 13my 16my

2. Sample H contains 23 parent atoms and 14 daughter atoms.
   a. What percentage of those atoms are parent atoms?
   23% 33% 43% 53% 63%
   62

   b. Which of the following is closest to the age of Sample H?
   1my 4my 7my 10my 13my 16my

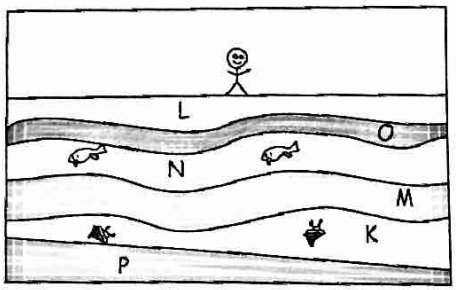
3. Sample I contains 20 parent atoms and 43 daughter atoms.
   a. What percentage of those atoms are parent atoms?
   12% 22% 32% 42% 52%
   b. Which of the following is closest to the age of Sample I?
   1my 4my 7my 10my 13my 16my

4. Sample G contains 50 parent atoms and 174 daughter atoms.
   a. What percentage of those atoms are parent atoms? 12% 22% 32% 42% 52%

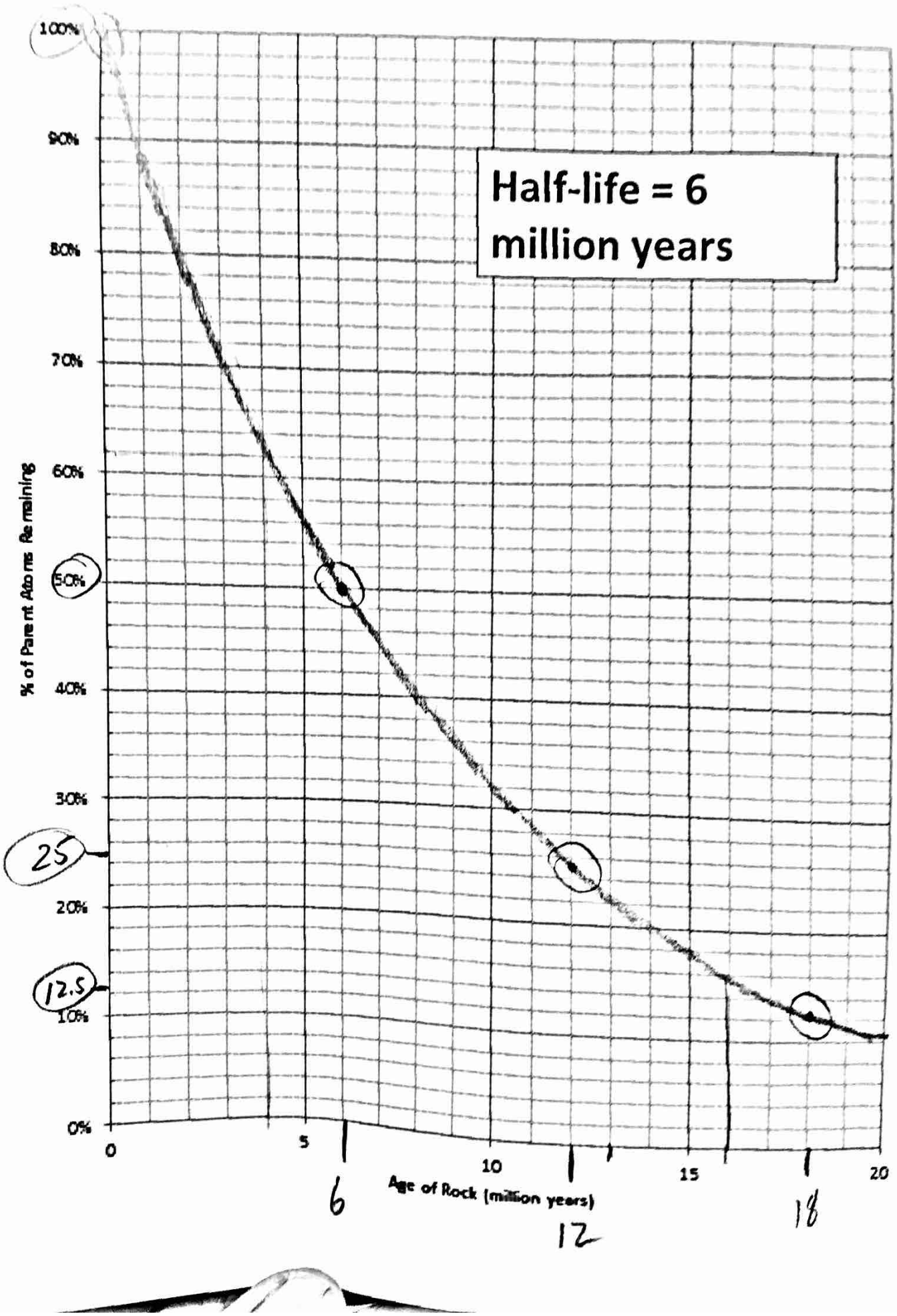
   b. Which of the following is closest to the age of Sample G?
   1my 4my 7my 10my 13my 16my

5. How many years ago did the Earthquake create the fault in the top diagram?
   1-4my 4-7my 7-10my 10-13my 13-16my
   4-10my

6. The diagram on the right shows rock samples from another location on Earth. Choose the most likely age range for layer K, in that diagram.
   1-4my 4-7my 7-10my 10-13my 13-16my
   4-10my



Older than 16my


Half-life = 6 million years
100%
90%
80%
70%
60%
50%
40%
30%
25
20%
12.5
10%
0%
% of Parent Atoms Remaining
0
5
10
15
20
Age of Rock (million years)
6
12
18