

Name (Last, First) _____

Draw/Complete the following diagrams/exercises.

1. Oldest Event

- A = sandstone layer deposited
 - B = limestone layer deposited
 - C = extrusive volcanic layer crosscutting and covering both A and B (start it from bottom or side)
 - D = small-grained clastic layer deposited
 - E = medium grained clastic layer deposited
 - F = stream incises both D and E
- Youngest Event

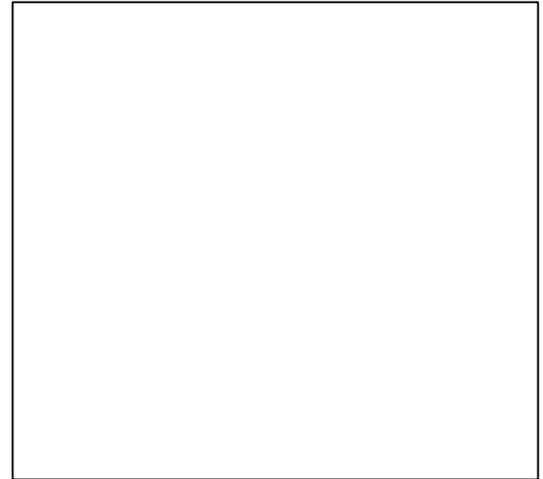
- a. Draw dashed lines where metamorphism occurs.
- b. The type of metamorphism is _____.
- c. Rocks from layer _____ will likely be changed to _____ while rock from layer _____ will likely be changed to _____.



2. Oldest event

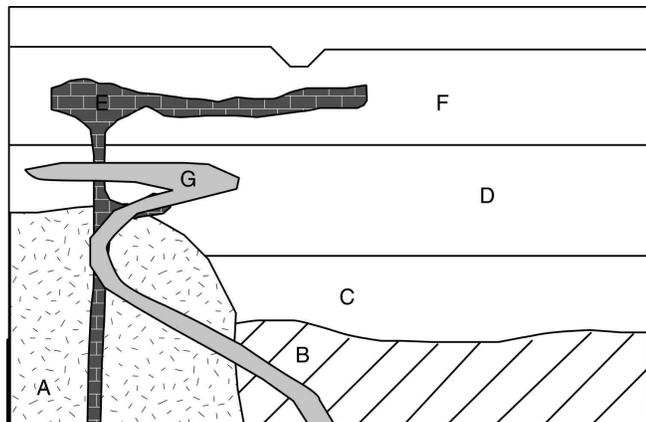
- A = Tilted and partially eroded layer of schist
- B = dark extrusive volcanic layer crosscutting A
- C = chemical sedimentary layer
- D = river incises C
- E = extrusive volcanic layer crosscutting A, B and C

- a. Layer B has (small)(large) grains and is probably _____ (type rock).
- b. C is transparent and formed in a large lake or ocean. It is _____ (type rock).
- c. A most likely formed during _____ (what type) metamorphism.



3. Complete the following relative time diagram.

Youngest	Principle
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
Oldest	



Numerical or absolute time questions.

4. If a rock sample has 25,000 atoms of an isotope after 4 half lives, how many isotopes were here when decay started?

5. A radioactive isotope of element Y is discovered in different amounts in four rocks. Which rock is youngest and Why?

- a) 15% of element Y remains in Rock A c) 28% of element Y remains in Rock C
b) 57% of element Y remains in Rock B d) 75% of element Y remains in Rock D

6. Draw a graph below that shows the change in the proportion of unstable (parent) radioactive isotopes with time.

7. The world's oldest known rock is approximately 4 billion (4,000 million) years old (actually 3.96 Byrs). What are the approximate relative percentages of parent and daughter isotopes for Uranium-238 and Lead-206 (half-life = 4.5 billion years)?

8. The world's oldest known rock is approximately 4 billion (4,000 million) years old (actually 3.96 Byrs). What are the approximate relative percentages of parent and daughter isotopes for Uranium-235 and Lead-207 (half-life = 704 million years)?

9. Which isotope system is best suited for measuring the age of the earth and Why?