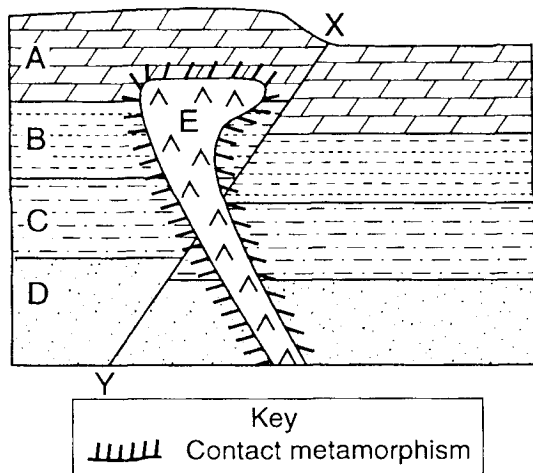
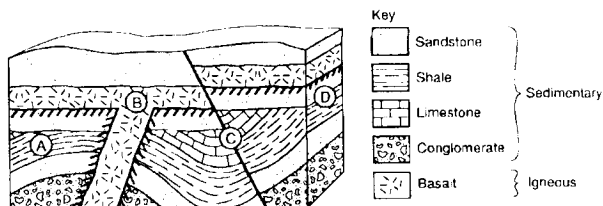


1. The geologic cross section below shows sedimentary rock layers *A*, *B*, *C*, and *D*, which have not been overturned. *E* is an igneous intrusion. Line *XY* represents a fault.



Which geologic event occurred most recently?

- (A) deposition of sediments for rock layer *A*
 (B) formation of the fault
 (C) intrusion of the igneous material *E*
 (D) cementation of sediments for rock layer *D*
2. Base your answer on the geologic cross section below.

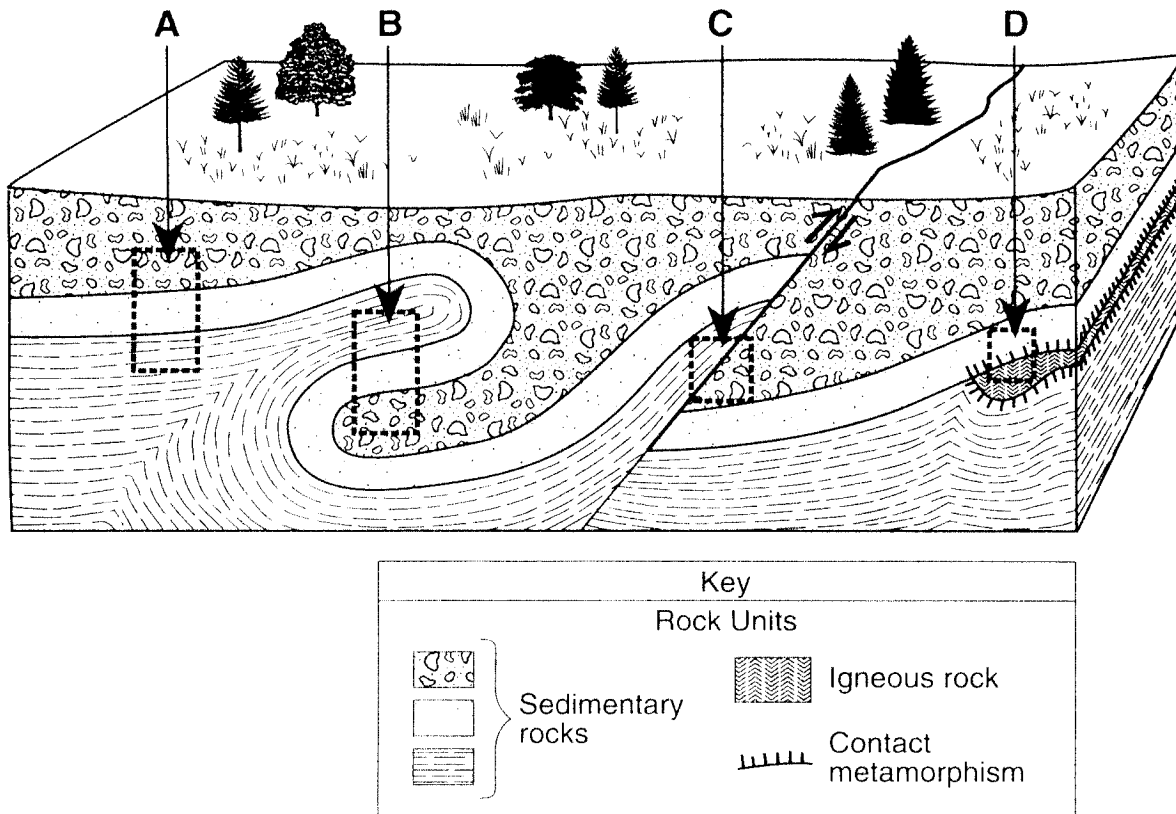


Which geologic event occurred most recently?

- (A) folding at *A*
 (B) the intrusion at *B*
 (C) faulting at *C*
 (D) the unconformity at *D*
3. Fossils would most likely be found in a sample of
- (A) limestone (C) quartzite
 (B) granite (D) metaconglomerate

Earth History Practice Test

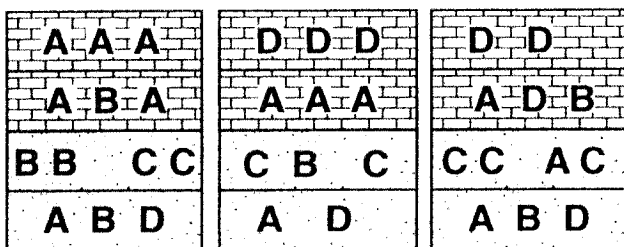
4. The block diagram below of a portion of Earth's crust shows four zones labeled *A*, *B*, *C*, and *D* outlined with dashed lines.



In which zone is a younger rock unit on top of an older rock unit?

- (A) *A* (B) *B* (C) *C* (D) *D*

5. The three cross sections of sedimentary bedrock shown below represent widely separated surface exposures of layers that contain fossils. Letters *A*, *B*, *C*, and *D* represent four different marine fossils found in these rock layers.

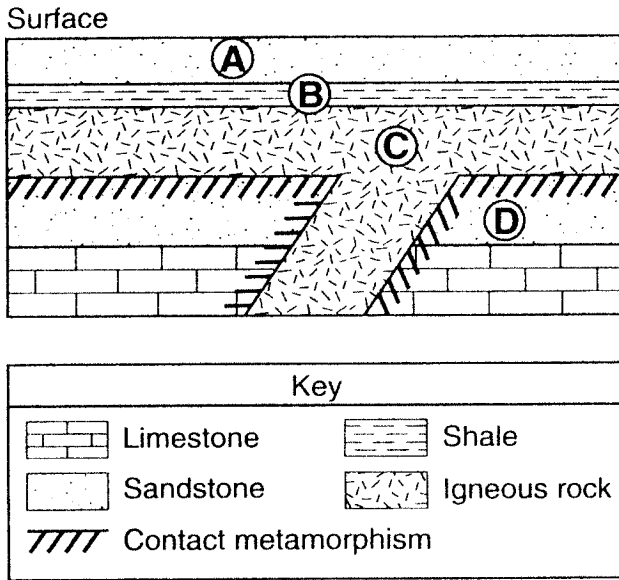


Which letter best represents an index fossil?

- (A) *A* (C) *C*
 (B) *B* (D) *D*

Earth History Practice Test

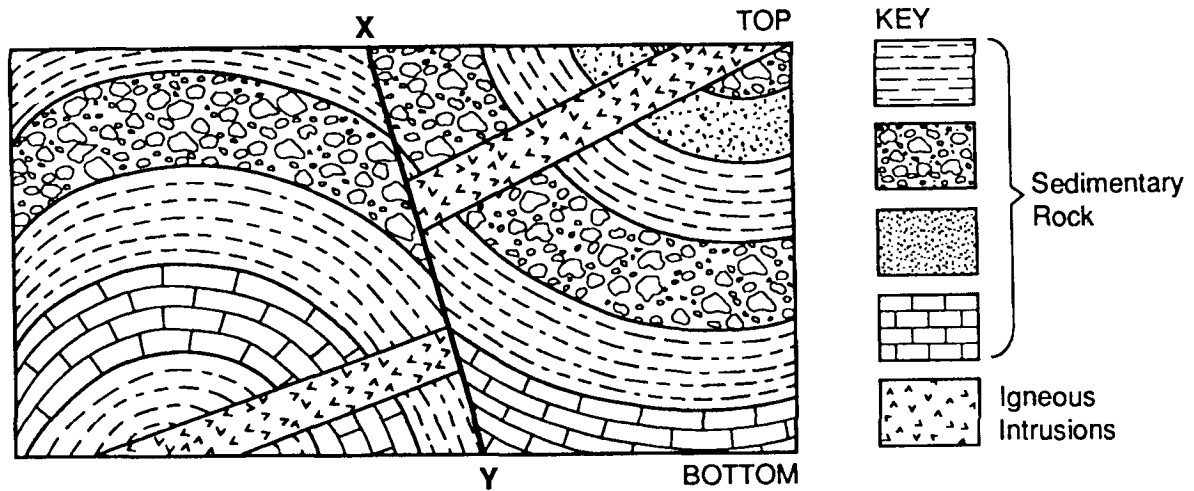
6. The diagram below shows a geologic cross section. Letters *A* through *D* represent different rock units.



- Which sequence correctly shows the age of the lettered rock units, from oldest to youngest?
- (A) $A \rightarrow B \rightarrow C \rightarrow D$ (C) $D \rightarrow B \rightarrow A \rightarrow C$
 (B) $C \rightarrow D \rightarrow A \rightarrow B$ (D) $D \rightarrow C \rightarrow B \rightarrow A$
7. Which statement best explains why dinosaur fossils have *not* been found in the bedrock in the area around Syracuse, New York?
- (A) Fossils are found only in sedimentary rock.
 (B) In the Syracuse area, dinosaur bones are located deep below the Earth's surface.
 (C) The dinosaurs were mobile and left no remains in the Syracuse area.
 (D) No rock record exists in the Syracuse area for the time period when the dinosaurs lived.
8. Which statement can best be supported by the fossil record?
- (A) Humans have lived on Earth throughout geologic history.
 (B) The organisms on Earth have not changed.
 (C) Most life-forms that existed on Earth have become extinct.
 (D) Dinosaurs existed on Earth for more than 544 million years.

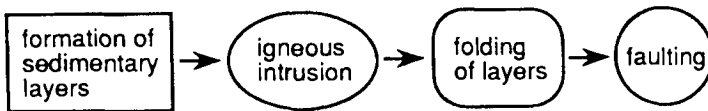
Earth History Practice Test

9. The diagram below shows a cross section of the Earth's crust. Line *XY* is a fault.

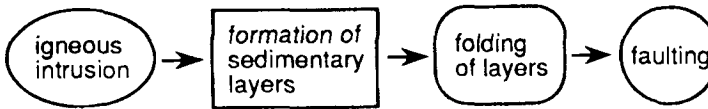


Which sequence of events, from oldest to youngest, has occurred in this outcrop?

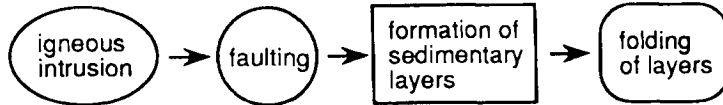
(A)



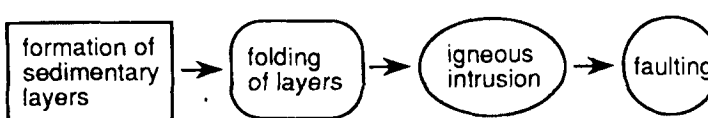
(B)



(C)



(D)



10. Approximately what percentage of the estimated age of Earth does the Cenozoic Era represent?

(A) 1.4%

(C) 11.9%

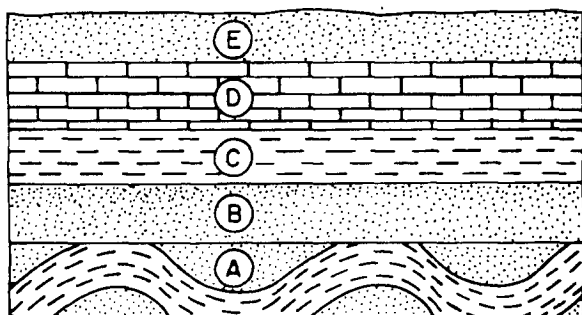
(B) 5.0%

(D) 65.0%

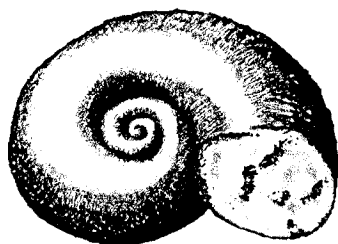
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11. Which characteristics of a fossil would make it useful as an index fossil in determining the relative age of widely separated rock layers?
- (A) a wide time range and a narrow geographic range
 (B) a wide time range and a wide geographic range
 (C) a narrow time range and a wide geographic range
 (D) a narrow time range and a narrow geographic range

12. In the geologic cross section shown below, between which two layers is part of the rock record most likely missing?



- (A) A and B (C) C and D
 (B) B and C (D) D and E
13. The diagram below shows an index fossil found in surface bedrock in some parts of New York State.



Maclurites

In which New York State landscape region is this gastropod fossil most likely found in the surface bedrock?

- (A) Tug Hill Plateau
 (B) Allegheny Plateau
 (C) Adirondack Mountains
 (D) Newark Lowlands

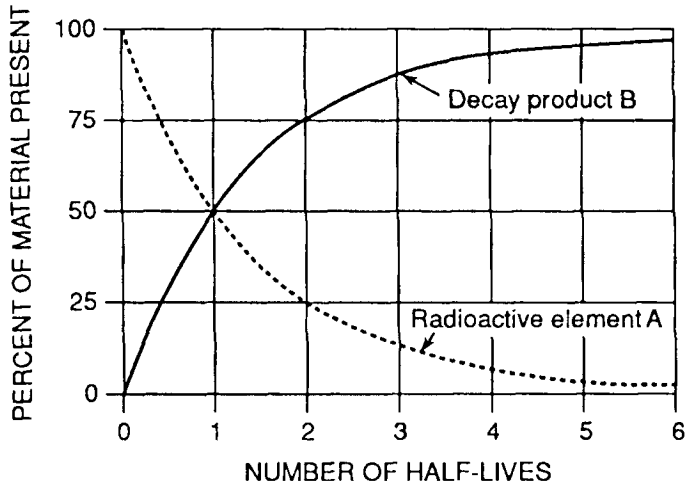
14. Which radioactive isotope is most useful for determining the age of mastodont bones found in late Pleistocene sediments?
- (A) uranium-238 (C) potassium-40
 (B) carbon-14 (D) rubidium-87
15. A fossil shell contains 25% of the original amount of its carbon-14. Approximately how many years ago was this shell part of a living organism?
- (A) 5,700 years ago (C) 17,100 years ago
 (B) 11,400 years ago (D) 22,800 years ago

16. Trilobite fossil remains are most likely to be found in bedrock of
- (A) Precambrian age near Mt. Marcy
 (B) Cretaceous age on Long Island
 (C) Triassic age northwest of New York City
 (D) Ordovician age near Plattsburgh
17. Which is the most probable reason that few Precambrian fossils are found today?
- (A) Precambrian organisms had few, if any, hard parts.
 (B) No life existed during the Precambrian Era.
 (C) Precambrian fossils are abundant but not readily observable.
 (D) No sedimentary rocks were formed during the Precambrian Era.
18. Trilobite fossils from different time periods show small changes in appearance. These observations suggest that the changes may be the result of
- (A) evolutionary development
 (B) a variety of geologic processes
 (C) periods of destruction of the geologic record
 (D) the gradual disintegration of radioactive substances

Earth History Practice Test

19. Earth scientists studied fossils of a certain type of plant. They noted slight differences in the plant throughout geologic time. What inference is best made from this evidence?
- (A) When the environment changed, this type of plant also changed, allowing it to survive.
 (B) When uplifting occurred, the fossils of this type of plant were deformed.
 (C) The processes which form fossils today differ from those of the past.
 (D) The fossils have changed as a result of weathering and erosion.

Base your answers to questions 20 through 24 on the graph below which shows the rate of radioactive decay of element *A* and the rate at which decay product *B* is formed.

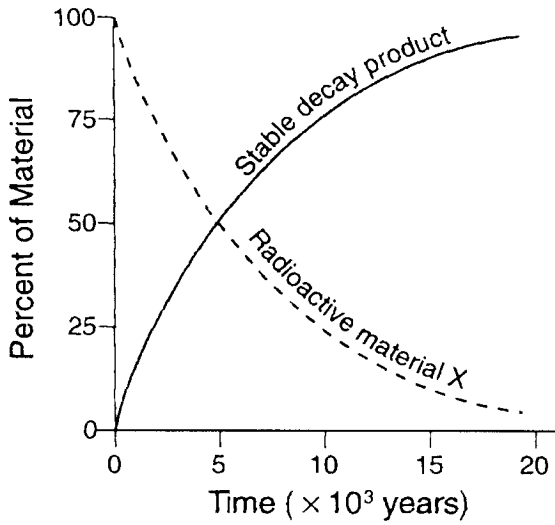


20. According to the graph, what is the total percentage of radioactive element *A* present after 3 half-lives?
- (A) 12.5% (C) 75.0 %
 (B) 25.0% (D) 87.5%
21. An igneous rock contains 2 grams of radioactive element *A* and 2 grams of decay product *B*. How old is the rock sample?
- (A) 1 half-life (C) 3 half-lives
 (B) 2 half-lives (D) less than 1 half-life

22. If the half-life of radioactive element *A* is 10,000 years, for which time interval would this element be most useful in determining the age of rock?
- (A) Precambrian (C) Mississippian
 (B) Devonian (D) Pleistocene
23. If the radioactive element in a rock sample is potassium-40, which resulting decay product would be present?
- (A) Sr^{87}
 (B) Ar^{40}
 (C) N^{14}
 (D) C^{12}
24. Two rocks containing radioactive element *A* were taken from a mine. One had a mass of 2 grams; the other had a mass of 4 grams. Compared to the half-life of element *A* in the 4-gram sample, the half-life of element *A* in the 2-gram sample will be
- (A) shorter (C) the same
 (B) longer

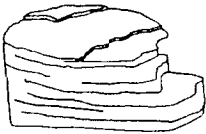
Earth History Practice Test

Base your answers to questions 25 and 26 on the graph below, which represents the decay of radioactive material *X* into a stable decay product.



25. Each of the objects below has different amounts remaining of the original radioactive material *X*. Which object is most likely the oldest?

(A)



Rock
10% of the radioactive material remains

(D)



Bone
52% of the radioactive material remains

(B)



Wood
33% of the radioactive material remains

(C)



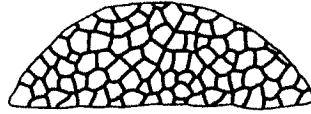
Shell
41% of the radioactive material remains

26. If radioactive material *X* were heated, the length of its half-life period would

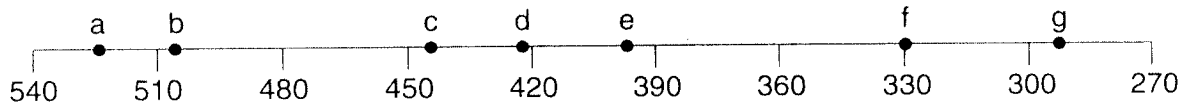
- (A) decrease (C) remain the same
(B) increase

Earth History Practice Test

Base your answers to questions 27 through 29 on the geologic time line shown in your answer booklet. Letters *a* through *g* on the time line indicate specific reference points in geologic time.



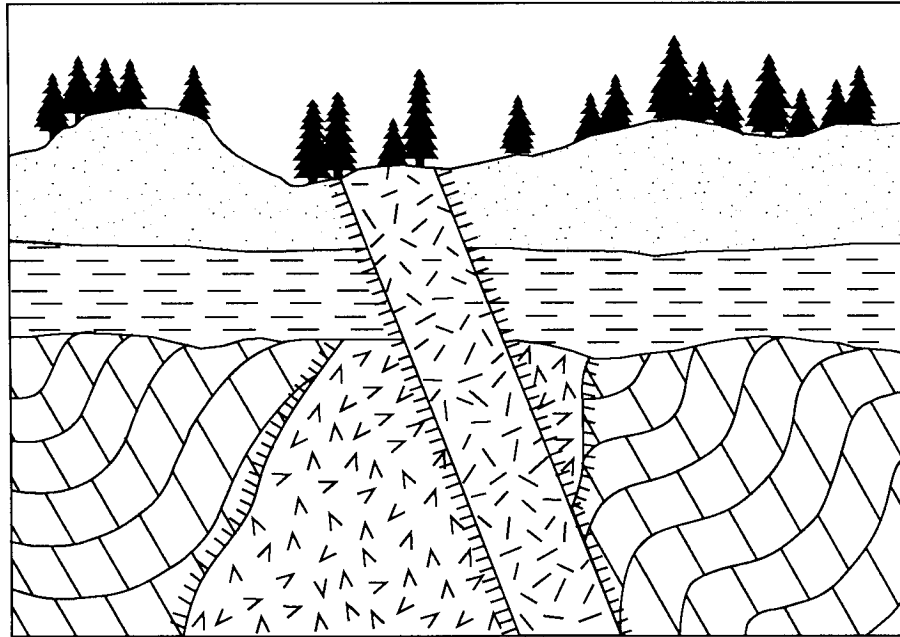
Geologic Time Line (millions of years ago)









27. Letter *a* indicates a specific time during which geologic period?
28. Identify the mountain building event (orogeny) that was occurring in eastern North America at the time represented by letter *g*.
29. Identify *one* letter that indicates a time for which there is no rock record in New York State.

Earth History Practice Test

30. Base your answer to the following question on the information and diagram below. The diagram represents a cliff of exposed bedrock that was investigated by an Earth science class.



Key to Rock Symbols

 Sandstone	 Folded limestone	 Granite
 Basalt	 Shale	 Contact metamorphism

After the students examined the cliff, they made three correct inferences about the geologic history of the bedrock.

Inference 1: The shale layer is older than the basaltic intrusion.

Inference 2: The shale layer is older than the sandstone layer.

Inference 3: An unconformity exists directly under the shale layer.

Explain how *each* inference is supported by evidence shown in the diagram.

**Earth History Practice Test
Answer Key**

- | | |
|------------------|--|
| 1. <u> C </u> | 25. <u> A </u> |
| 2. <u> C </u> | 26. <u> C </u> |
| 3. <u> A </u> | 27. Cambrian |
| 4. <u> A </u> | 28. Examples: –
Appalachian Orogeny. –
Alleghanian Orogeny. |
| 5. <u> C </u> | 29. <i>f</i> or <i>g</i> |
| 6. <u> D </u> | 30. <i>Inference 1 examples:</i> –
An igneous intrusion is
younger than the bedrock
it intrudes. – The basalt
metamorphosed the shale. |
| 7. <u> D </u> | <i>Inference 2 examples:</i> –
The shale layer is below
the sandstone layer. –
Younger sedimentary
bedrock is normally
found on top of older
sedimentary bedrock. |
| 8. <u> C </u> | <i>Inference 3 examples:</i> –
The limestone layers are
folded and tilted but the
shale layer is not folded
and is horizontal. – The
shale layer is not
metamorphosed by the
granite. – There is an
irregular (erosional)
surface between the
shale and the limestone. |
| 9. <u> D </u> | |
| 10. <u> A </u> | |
| 11. <u> C </u> | |
| 12. <u> A </u> | |
| 13. <u> A </u> | |
| 14. <u> B </u> | |
| 15. <u> B </u> | |
| 16. <u> D </u> | |
| 17. <u> A </u> | |
| 18. <u> A </u> | |
| 19. <u> A </u> | |
| 20. <u> A </u> | |
| 21. <u> A </u> | |
| 22. <u> D </u> | |
| 23. <u> B </u> | |
| 24. <u> C </u> | |
-