

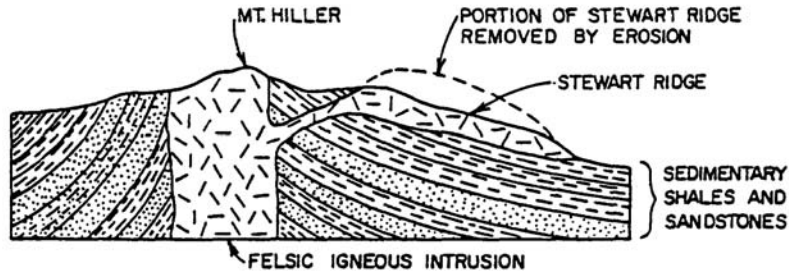
Name _____

Date _____

Regents Earth Science - Earth History Review

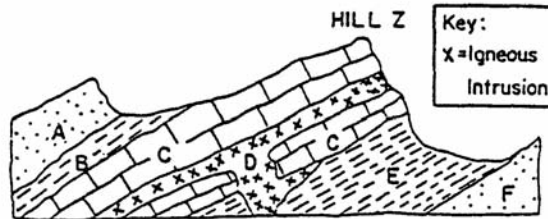
- Geologic time is divided into units based upon
 - erosion rates
 - rock types
 - surface topography
 - fossil evidence
- According to the *Earth Science Reference Tables*, during which period were North America, Africa, and South America closest?
 - Tertiary
 - Cretaceous
 - Triassic
 - Ordovician
- During the Pleistocene Epoch, what natural event modified much of New York State's existing landscape?
 - destruction of ground cover by large forest fires
 - extinction of many animal forms
 - advance of the continental glaciers
 - formation of the Adirondack Mountains and the Hudson Highlands
- According to the *Earth Science Reference Tables*, in New York State there are no rocks of the following ages
 - Permian and Tertiary
 - Ordovician and Cretaceous
 - Ordovician and Cambrian
 - Triassic and Jurassic
- A timeline is made on a strip of paper to illustrate the Earth's history. A length of 1.0 centimeter is used to represent 10 million years. According to the *Earth Science Reference Tables*, what distance should be used to represent the length of the Mesozoic Era?
 - 0.186 cm
 - 1.86 cm
 - 18.6 cm
 - 186 cm
- According to the *Earth Science Reference Tables*, which covered the longest period of time?
 - Cenozoic
 - Mesozoic
 - Paleozoic
 - Precambrian
- A sedimentary rock consists of grains of sand cemented together. What is the relative age of the sand grains?
 - younger than the rock
 - older than the rock
 - the same age as the rock

Base your answers to questions **8 and 9** on the *Earth Science Reference Tables* and the diagram below of a cross section of a portion of the Earth's crust.



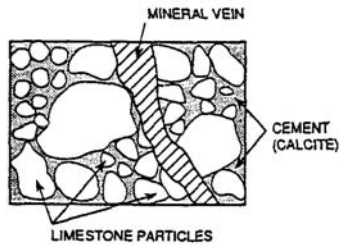
8. Which geologic event occurred first?
- 1 folding of the shales and sandstones
 - 2 deposition of the shales and sandstones
 - 3 erosion of part of Stewart Ridge
 - 4 intrusion of the felsic igneous rock
9. A rock sample taken from Mt. Hiller would most likely contain
- 1 quartz, and be light colored
 - 2 pyroxene, and be dark colored
 - 3 orthoclase, and be dark colored
 - 4 olivine, and be light colored

Base your answers to question **10 and 11** on your knowledge of Earth Science and on the cross section below which represents layers of sedimentary rock that have not been overturned but have been intruded by igneous rock.



10. Which rock layer is probably the oldest?
- | | |
|-----|-----|
| 1 A | 3 C |
| 2 F | 4 D |
11. Which best explains the presence of hill Z?
- 1 The intrusion of rock layer D weakened rock layer C.
 - 2 Rock layer D protected rock layer C from erosion.
 - 3 The landscape developed in a moist climate.
 - 4 Rock layer C is more resistant than rock layers above.

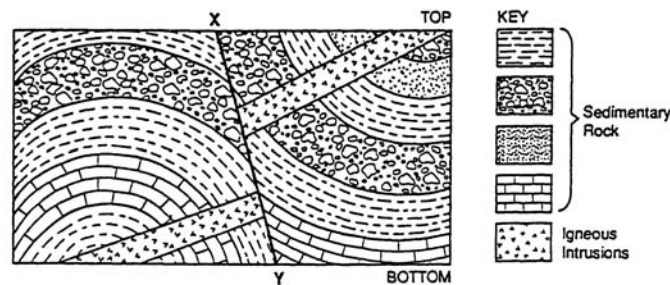
12. The diagram below shows a sample of conglomerate rock.



The oldest part of this sample is the

- 1 conglomerate rock sample
- 2 calcite cement
- 3 limestone particles
- 4 mineral vein

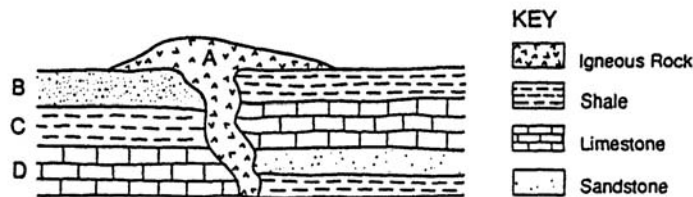
13. The diagram below shows a cross section of the Earth's crust. Line XY is a fault.



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

- 1 formation of sedimentary layers → igneous intrusion → folding of layers → faulting
- 2 igneous intrusion → formation of sedimentary rock layers → folding of layers → faulting
- 3 formation of sedimentary layers → folding of layers → igneous intrusion → faulting
- 4 igneous intrusion → faulting → formation of sedimentary rock layers → folding of layers

14. The diagram below shows a geologic cross section of a portion of the Earth's crust that has not been overturned.



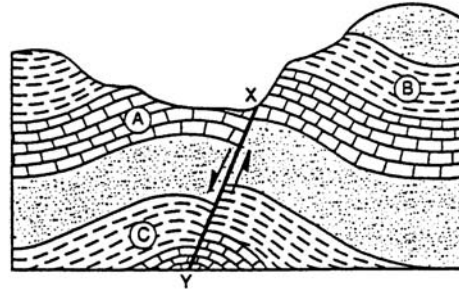
Which rock unit is the youngest?

- 1 A
- 2 B
- 3 C
- 4 D

15. The diagram below shows a geologic cross section of a portion of the Earth's crust.

Which geologic event occurred most recently?

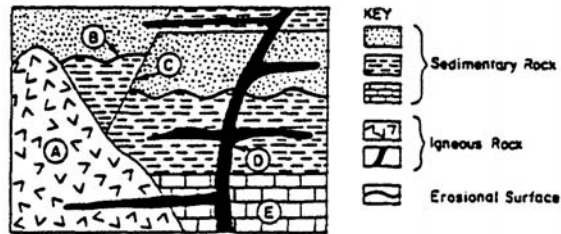
- 1 erosion of the surface of rock layer A
- 2 folding of rock layer B
- 3 deposition of rock layer C
- 4 faulting along line XY



16. The diagram below shows a geologic cross section of a portion of the Earth's crust.

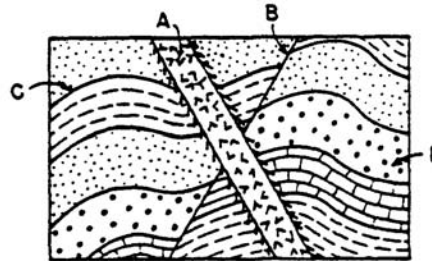
Which geologic event occurred last?

- 1 the formation of rock A
- 2 the erosion of surface B
- 3 the faulting along line C
- 4 the intrusion of rock D

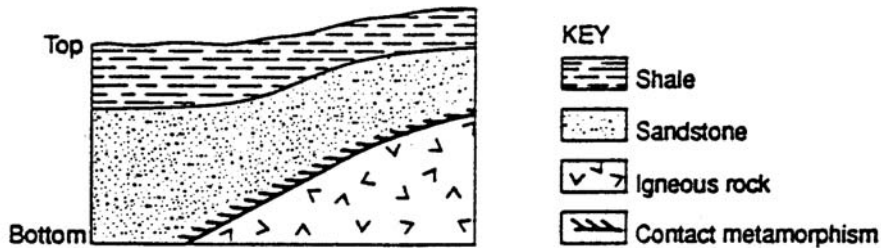


17. The diagram below represents an exposed rock outcrop. Which geologic event occurred last?

- 1 the intrusion of A
- 2 the fault along line B
- 3 the fold at C
- 4 the deposition of gravel at D



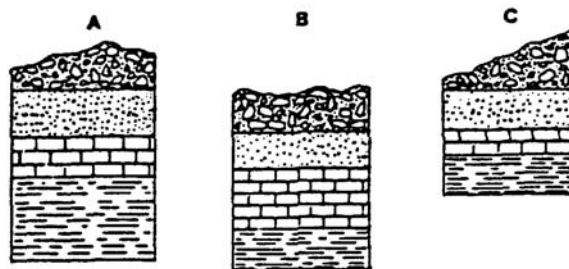
18. The diagram below represents a cross section.



Which inference is best supported by the evidence shown in the diagram?

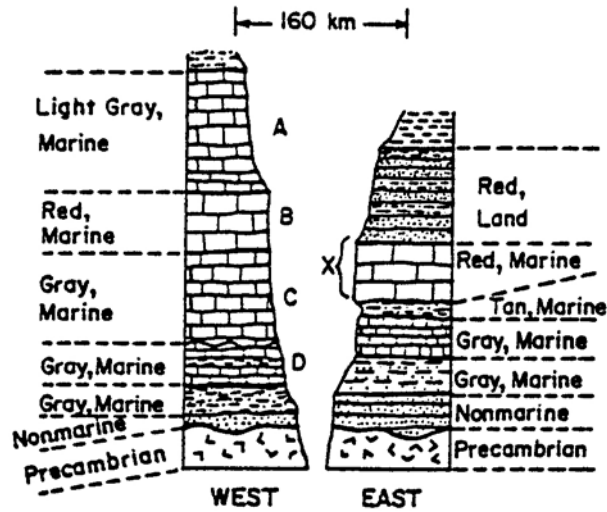
- 1 Igneous rock was changed to sedimentary rock.
- 2 Contact metamorphism occurred when the igneous rock was in the molten state.
- 3 Sandstone formed after sand was deposited on top of the metamorphic rock.
- 4 Shale formed from the melting and solidification of the sandstone layer.

19. A layer of volcanic ash may serve as a time marker because the ash is
- 1 generally deposited only on land
 - 2 composed of index fossils
 - 3 deposited rapidly over a large area
 - 4 often a distinct color
20. Which characteristics of a fossil would make it useful as an index fossil in determining the relative age of widely separated rock layers?
- 1 a wide time range and narrow geographic range
 - 2 a wide time range and wide geographic range
 - 3 a narrow time range and narrow geographic range
 - 4 a narrow time range and wide geographic range
21. A buried erosion surface always indicates that
- 1 part of the geologic record has been destroyed
 - 2 a type of animal has become extinct
 - 3 a new form of life has appeared
 - 4 a series of lava flows have occurred
22. Many parts of the rock record in New York State are missing. These parts are most likely missing because of
- 1 uplift and erosion
 - 2 earthquakes and volcanic activity
 - 3 subsidence and deposition
 - 4 folding and faulting
23. The diagram below represents cross sections of three rock outcrops approximately 100km apart. What could be the best method of correlating the rock layers of each outcrop?



- 1 comparing rock types
 - 2 comparing mineral composition
 - 3 comparing index fossils
 - 4 comparing thickness of rock layers
24. The changes observed in the fossil record from the Precambrian Era to the Cenozoic Era best provide evidence of
- 1 sublimation
 - 2 radioactive decay
 - 3 evolution
 - 4 planetary motion

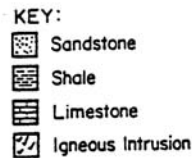
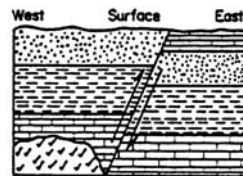
25. The diagram below represents two rock columns. The color and the environment of deposition of each sedimentary rock are indicated beside the rock layers. Which rock layer in the West geologic column is most likely the same as rock layer X in the East column?



- 1 A
2 B
3 C
4 D

26. What evidence is given in the diagram below that erosion has occurred?

- 1 the fault through the middle
2 the absence of surface limestone west of the fault
3 the presence of igneous material in the limestone
4 the upward movement of the rock layers west of the fault



27. During which geographic time interval was most of our present-day coal deposits formed?

- 1 Cenozoic
2 Mesozoic
3 Paleozoic
4 Precambrian

28. Rocks containing fossils of earliest terrestrial plants could most likely be found in New York State bedrock near

- 1 Syracuse
2 Oswego
3 Ithaca
4 Old Forge

29. According to the *Earth Science Reference Tables*, when did the armored fishes become extinct?

- 1 before the appearance of dinosaurs
2 before the appearance of terrestrial plants
3 after the appearance of reptiles
4 after the appearance of birds

30. After one half-life, how much of the original sample of C^{14} would remain?
- | | |
|---------|---------|
| 1 12.5% | 3 50% |
| 2 25.0% | 4 87.5% |
31. In an original sample of U^{238} has a mass of 24 grams, what is the total amount of U^{238} left after 18 billion years?
- | | |
|--------------|-------------|
| 1 12.0 grams | 3 3.0 grams |
| 2 6.0 grams | 4 1.5 grams |
32. Which two forms of life existed together on the Earth during the same time period?
- | | |
|---------------------------|-----------------------------------|
| 1 dinosaurs and mastodons | 3 flowering plants and trilobites |
| 2 trilobites and birds | 4 mastodons and flowering plants |
33. According to the *Earth Science Reference Tables*, at which location could a geologist find shale containing eurypterid fossils?
- | | |
|-------------|-----------------|
| 1 Old Forge | 3 New York City |
| 2 Syracuse | 4 Long Island |
34. Which form of life existed on the Earth for the longest period of time?
- | | |
|--------------|--------------------|
| 1 dinosaurs | 3 armored fish |
| 2 trilobites | 4 flowering plants |

35. The drawing below shows a fish that existed during the Ordovician Period.







According to the *Earth Science Reference Tables*, a fossil of this fish might be found in New York State bedrock that is how many million years old?

- | | |
|-------|-------|
| 1 160 | 3 350 |
| 2 225 | 4 445 |
36. For which segment of the Earth's geologic history are fossils rarely found?
- | | |
|------------|---------------|
| 1 Cenozoic | 3 Paleozoic |
| 2 Mesozoic | 4 Precambrian |
37. According to the *Earth Science Reference Tables*, which event occurred at the time of the Alleghanian Orogeny?
- 1 the extinction of many kinds of marine organisms
 - 2 the extinction of many kinds of land animals
 - 3 the development of primitive aquatic plants
 - 4 the development of birds and mammals
38. If 12.5% of the radioactive potassium-40 in a sample is remaining, what is the approximate age of the rock?
- | | |
|---------------------|---------------------|
| 1 1.3×10^9 | 3 3.9×10^9 |
| 2 2.6×10^9 | 4 4.5×10^9 |

39. The chart below shows index fossils found in rocks of various ages.

According to the *Earth Science Reference Tables*, which fossil could be found in the same rock as fossils of the first corals?

- 1 Spirifer
- 2 Muscrospirifer
- 3 Eospirifer
- 4 Michelinoceras

BEDROCK AGE	INDEX FOSSIL
MISSISSIPPIAN	 SPIRIFER
DEVONIAN	 MUCROSPRIFER
SILURIAN	 EOSPIRIFER
ORDOVICIAN	 MICHELINOCERAS

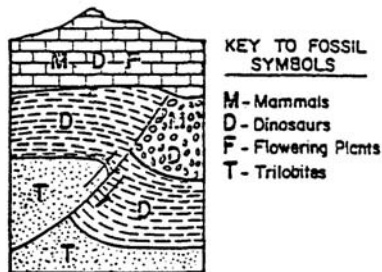
40. The cartoon below represents the time of the last dinosaurs and the earliest mammals.

According to the *Earth Science Reference Tables*, the cartoon would represent the boundary between which two units of geologic history?

- 1 Archean and Proterozoic
- 2 Precambrian and Paleozoic
- 3 Ordovician and Silurian
- 4 Mesozoic and Cenozoic



41. The geologic cross section below represents the fossil remains present in several rock layers in the Earth's crust. [If a fossil symbol is not shown in a rock layer, the plant or animal did not exist when the rock layer was formed.]



Based on this diagram and the *Earth Science Reference Tables*, during which geologic time did the faulting shown in the diagram take place.

- 1 Early Permian Period
- 2 Late Cambrian Period
- 3 Late Jurassic Period
- 4 Early Tertiary Period (Paleocene Epoch)