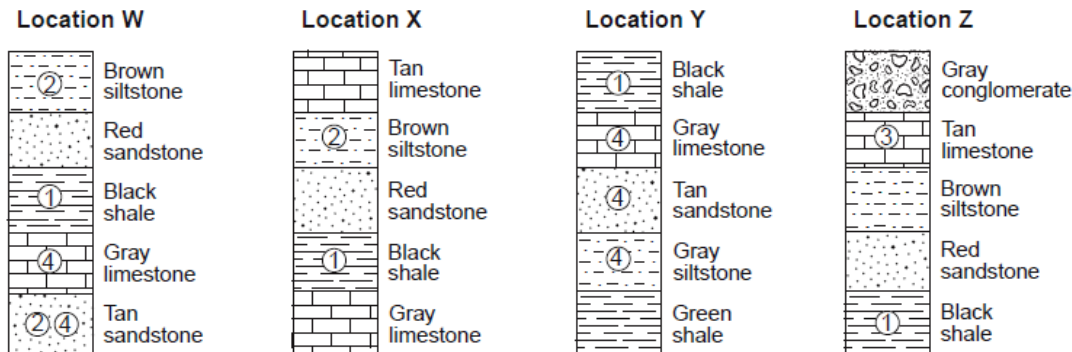


Name _____

Base your answers to questions 1 and 2 on the rock columns below and on your knowledge of Earth science. The rock columns represent four widely separated locations, *W*, *X*, *Y*, and *Z*. Number 1, 2, 3, and 4 represent fossils. The rock layers have *not* been overturned.



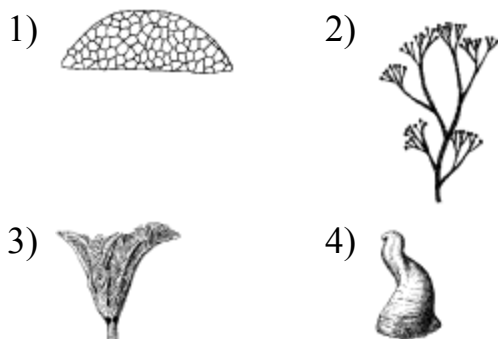
1. Which rock layer is the oldest?

- | | |
|------------------|-------------------|
| 1) tan sandstone | 2) gray limestone |
| 3) green shale | 4) black shale |

2. Which numbered fossil best represents an index fossil?

- | | | | |
|------|------|------|------|
| 1) 1 | 2) 2 | 3) 3 | 4) 4 |
|------|------|------|------|

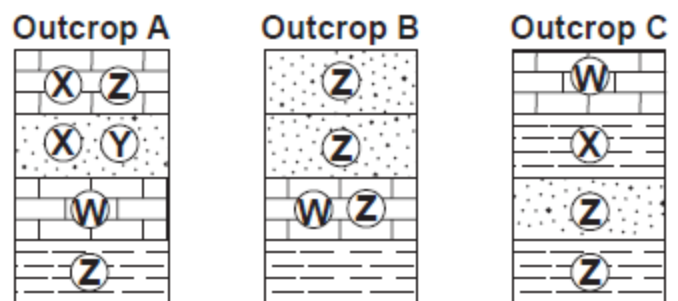
3. Which New York State index fossil is classified as a coral?



4. A volcanic ash layer between sedimentary rock layers is used by geologists to

- 1) determine Earth's absolute age
- 2) predict global warming
- 3) locate an earthquake epicenter
- 4) correlate widely separated rock formations

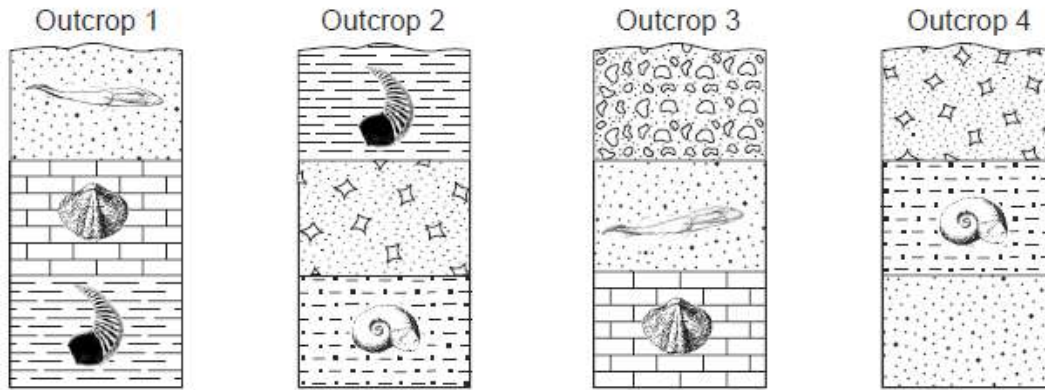
5. The cross sections below represent three widely separated bedrock outcrops labeled *A*, *B*, and *C*. Letters *W*, *X*, *Y*, and *Z* represent fossils found in the rock layers.



Which fossil could best be used as an index fossil?

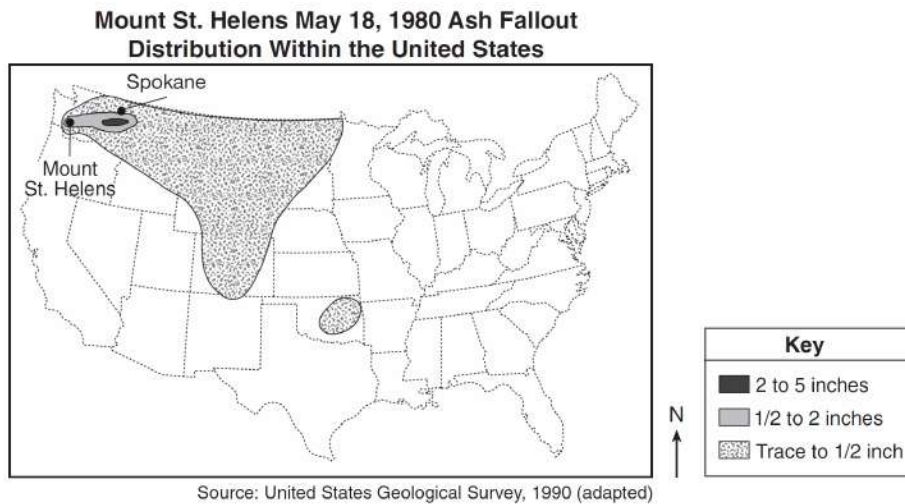
- | | | | |
|-------------|-------------|-------------|-------------|
| 1) <i>W</i> | 2) <i>X</i> | 3) <i>Y</i> | 4) <i>Z</i> |
|-------------|-------------|-------------|-------------|

6. Four rock outcrops, labeled 1, 2, 3, and 4, found within the same plateau, are represented below. Index fossils found in some of the rock layers are shown. The rock layers have *not* been overturned.



Which rock layer is the youngest?

- 1) sandstone in outcrop 1
 - 2) breccia in outcrop 2
 - 3) conglomerate in outcrop 3
 - 4) sandstone in outcrop 4
7. The map below shows the distribution of ash across the United States as a result of the May 18, 1980 volcanic eruption of Mount St. Helens.



Volcanic ash deposits such as these are usually excellent geologic time markers because they

- 1) occur at regular time intervals
- 2) spread over a large area in a short amount of time
- 3) represent a time gap in the rock record
- 4) contain index fossils from different time periods

8. Organisms that later became good index fossils lived over a

- 1) wide geographic area and existed for a long geologic time
- 2) wide geographic area and existed for a short geologic time
- 3) limited geographic area and existed for a long geologic time
- 4) limited geographic area and existed for a short geologic time

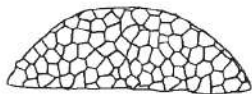
9. The index fossil shown below has been found in New York State sedimentary bedrock.



Phacops

Which other index fossil could also be found in New York State bedrock of the same age?

1)



Lichenaria

2)



Elliptocephala

3)



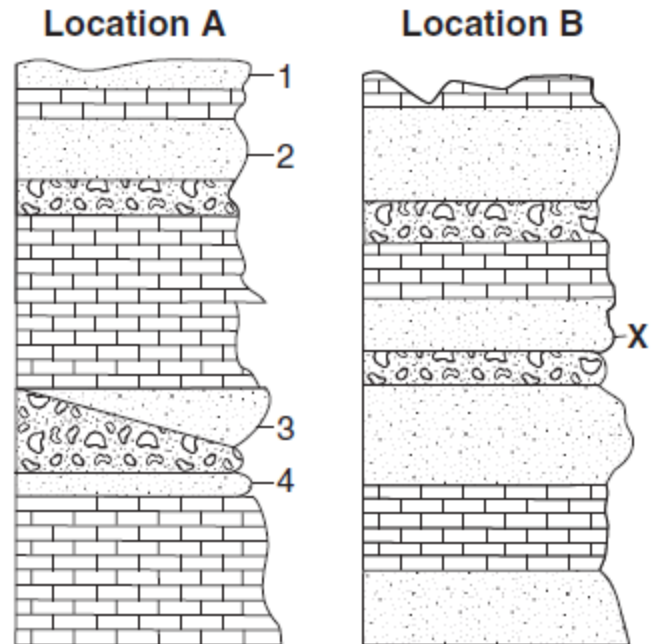
Manticoceras

4)



Eospirifer

10. The cross sections below show the surface bedrock in two different locations 20 miles apart. Rock layers are labeled 1, 2, 3, 4, and X. The rock layers have not been overturned.



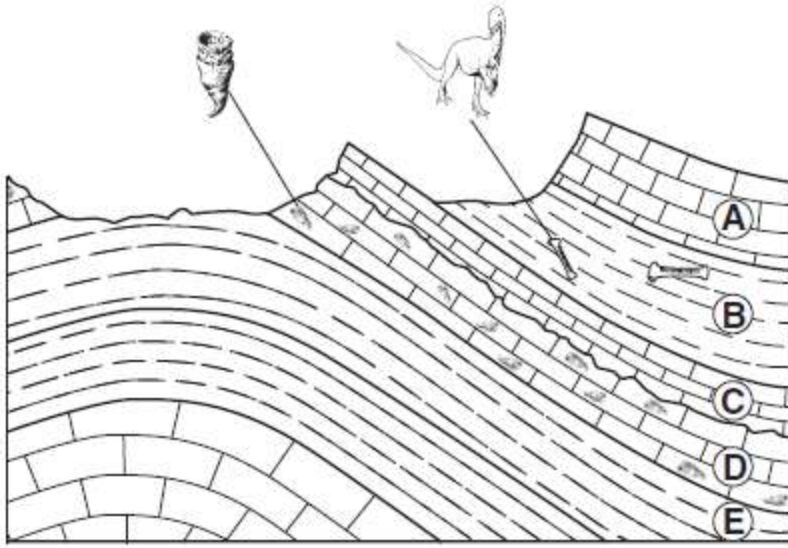
Rock layer X at location B is most likely the same relative as which rock layer at location A?

- 1) 1 2) 2 3) 3 4) 4

11. Sedimentary rock units several hundred kilometers apart could best be correlated by comparing the

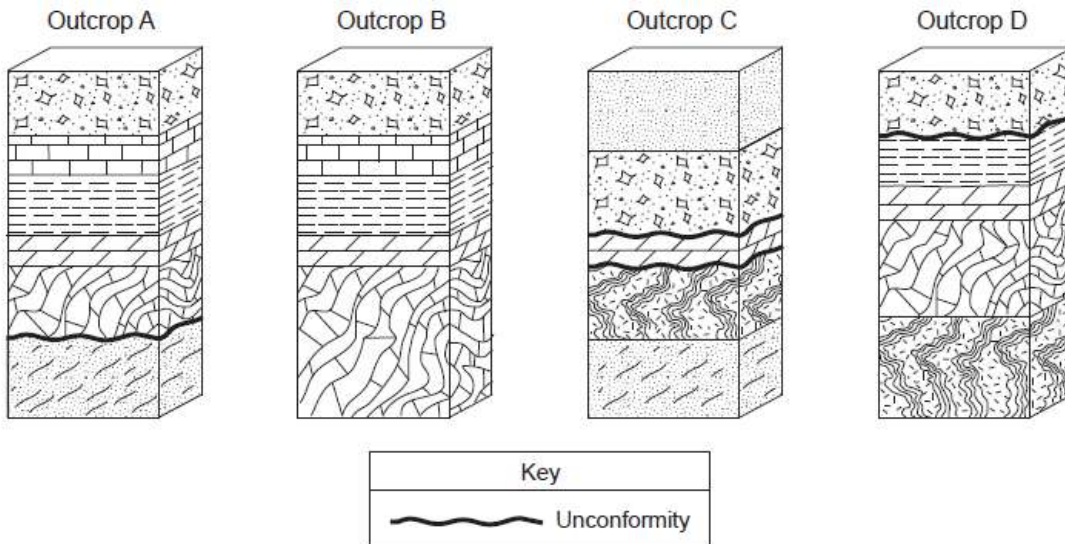
- 1) color and thickness of each rock unit
- 2) fossils found in each rock unit
- 3) types of soil located above each rock unit
- 4) degree of weathering and erosion of each rock unit

12. Base your answer to the following question on the geologic cross section below of a region of Earth's crust. Rock layers *A* through *E* have been labeled. Two index fossils are shown and their locations within the rock layers are indicated.



Approximately how many million years older than bedrock layer *B* is bedrock layer *D*?

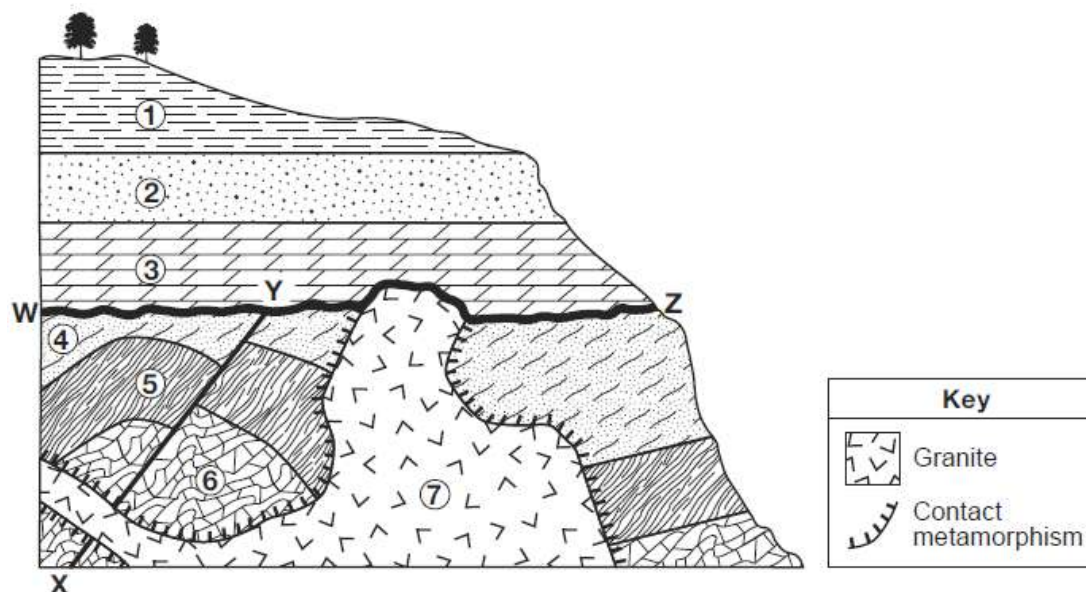
- 1) 150 2) 220 3) 340 4) 420
13. Base your answer to the following question on the block diagrams of four rock outcrops, *A*, *B*, *C*, and *D*, located within 15 kilometers of each other. The rock layers have not been overturned.



When the rock layers at outcrops *A*, *B*, *C*, and *D* are correlated, which rock layer would be determined to be the oldest?

- 1) quartzite 2) marble 3) gneiss 4) sandstone

14. Base your answer to the following question on the cross section below and on your knowledge of Earth science. On the cross section, numbers 1 through 7 represent rock units in which overturning has *not* occurred. Line *XY* represents a fault and line *WZ* represents the location of an unconformity.



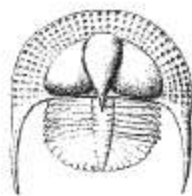
The three index fossils below are found within rock units 1, 2, and 3. Since the rock units were deposited during different geologic time periods, each fossil is found in a different rock unit.



Hexameroceras



Centroceras



Cryptolithus

Write the name of each of these index fossils next to the rock unit where the fossil is most likely found.

Rock Unit	Fossil Name
1	
2	
3	