

Name: _____

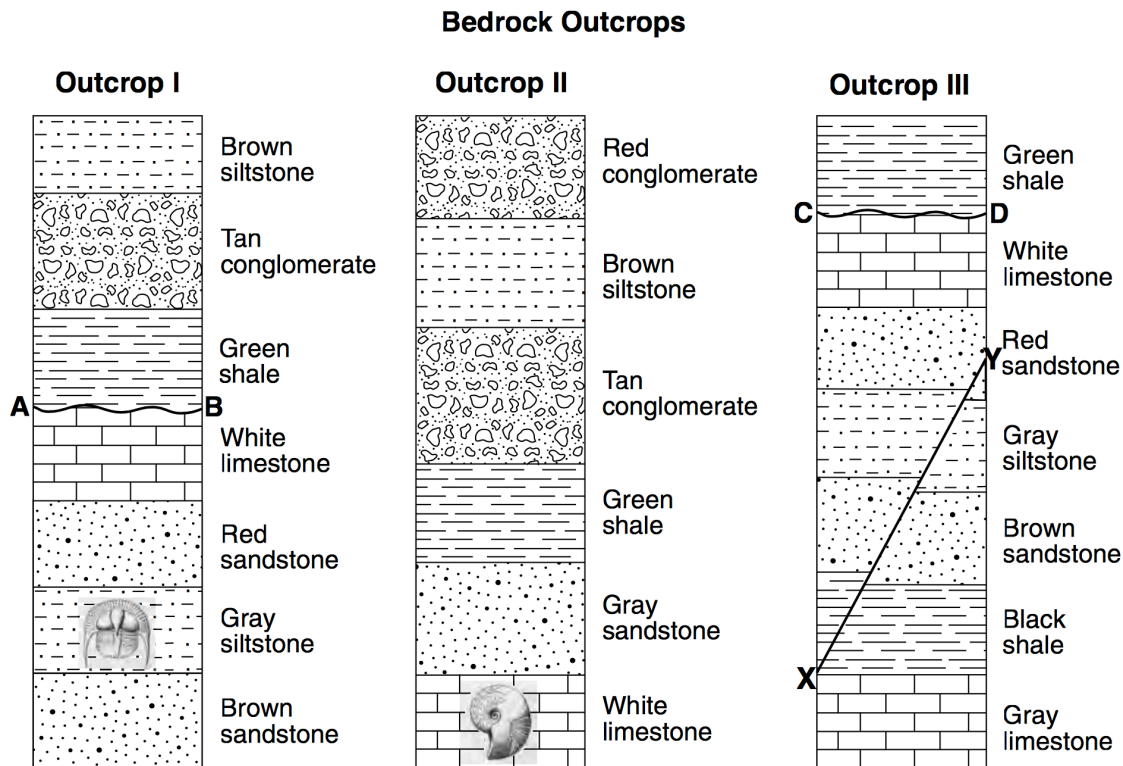
Date: _____ Period: _____

Regents Review: Geologic Time

- Volcanic ash is a good geologic time marker because the ash
 - is deposited rapidly over a large area
 - spreads evenly in all compass directions
 - is easily weathered and eroded
 - remains in the atmosphere for millions of years
- The change in life-forms in the fossil record from less complex organisms to more complex organisms over time is best explained by
 - extinction
 - evolution
 - dynamic equilibrium
 - original horizontality
- During which geologic epoch does the New York State rock record consist of weakly consolidated to unconsolidated sediments?
 - Early Permian
 - Early Jurassic
 - Late Cretaceous
 - Pliocene
- The New York State index fossil *Valcouroceras* is classified as a
 - coral
 - crinoid
 - eurypterid
 - nautiloid
- Earth's early atmosphere contained carbon dioxide, sulfur dioxide, hydrogen, nitrogen, water vapor, methane, and ammonia. These gases were present in the atmosphere primarily because
 - radioactive decay products produced in Earth's core were released from Earth's surface
 - evolving Earth life-forms produced these gases through their activity
 - Earth's growing gravitational field attracted these gases from space
 - volcanic eruptions on Earth's surface released these gases from the interior
- How old is a bone that has 12.5% of the original amount of radioactive carbon-14 remaining?
 - 5,700 years
 - 11,400 years
 - 17,100 years
 - 22,800 years
- Scientists infer that oxygen in Earth's atmosphere did not exist in large quantities until after
 - the first multicellular, soft-bodied marine organisms appeared on Earth
 - the initial opening of the Atlantic Ocean
 - the first sexually reproducing organisms appeared on Earth
 - photosynthetic cyanobacteria evolved in Earth's oceans

Regents Review: Geologic Time

Base your answers to questions 8 through 10 on the three bedrock outcrops below and on your knowledge of Earth science. The outcrops, labeled I, II, and III, are located within 15 kilometers of each other. Lines AB and CD represent unconformities. Line XY represents a fault. No overturning of the layers has occurred.



8. Which layer is the youngest?
 - a. gray limestone
 - b. red conglomerate
 - c. brown siltstone
 - d. brown sandstone

9. The unconformities at AB and CD resulted from
 - a. uplift and erosion, followed by subsidence and deposition
 - b. movement along a crack between two rock layers
 - c. contact metamorphism between two sedimentary layers
 - d. regional metamorphism of deeply buried sedimentary rocks

10. Based on evidence shown in the diagram, which rock layer is older than fault XY?
 - a. tan conglomerate
 - b. black shale
 - c. brown siltstone
 - d. gray limestone

Regents Review: Geologic Time

Base your answers to questions 11 through 13 on the data table and information below and on your knowledge of Earth science. The data table shows the radioactive decay of carbon-14 and the age of fossil remains, in years (y). Part of the table has been left blank.

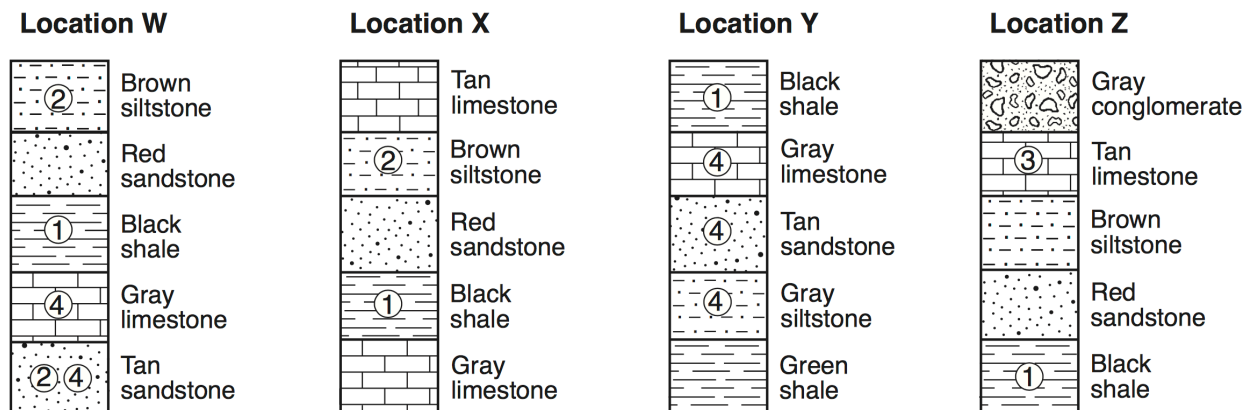
Data Table

Number of Half-Lives	Remaining Carbon-14 (%)	Age of Fossil Remains (y)
0	100	0
1	50	5,700
2	25	11,400
3	12.5	
4	6.25	
5	3.125	

11. Identify the decay product when carbon-14 undergoes radioactive disintegration.
12. The carbon-14 in the fossil remains of a mastodont has undergone five half-lives of radioactive decay. Calculate the age of these fossil remains.
13. Why would you not use carbon-14 to date the remains of a trilobite?

Regents Review: Geologic Time

Base your answers to questions 14 through 17 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. Numbers 1, 2, 3, and 4 represent fossils. The rock layers have not been overturned.



14. Which numbered fossil best represents an index fossil?

15. Which rock layer is the oldest?

16. Which rock layer formed from the deposition of land-derived sediments that had a uniform particle size of about 0.01 cm in diameter?

17. Which rock layer is the youngest?