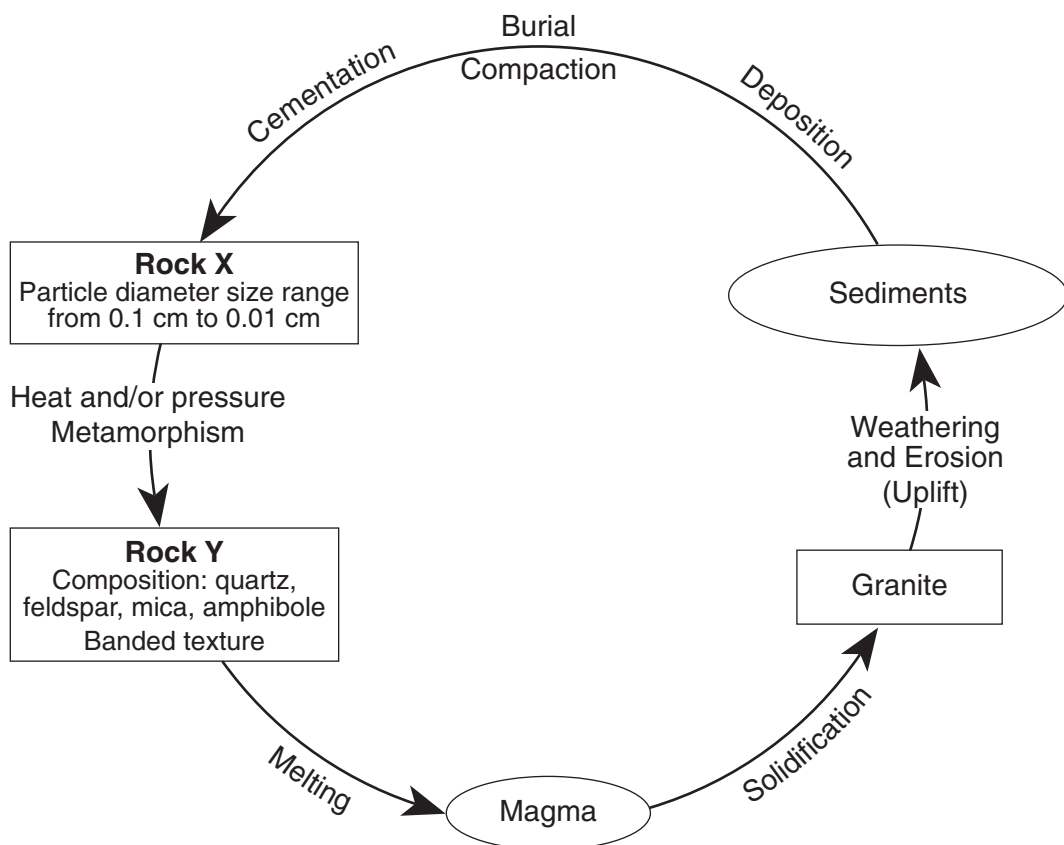


Name _____

Rock & Minerals Regents Review

Base your answers to questions 1 through 3 on the diagram below, which represents a part of the rock cycle. The igneous rock granite, and the characteristics of sedimentary rock X and metamorphic rock Y are shown.



1. Identify sedimentary rock X

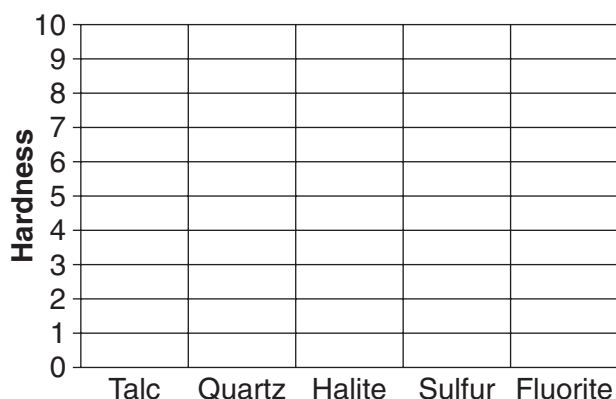
2. Identify metamorphic rock Y

3. Complete the table with descriptions of the observable characteristics used to identify granite.

| Characteristic of Granite | Description |
|---------------------------|-------------|
| Texture | |
| Color | |
| Density | |

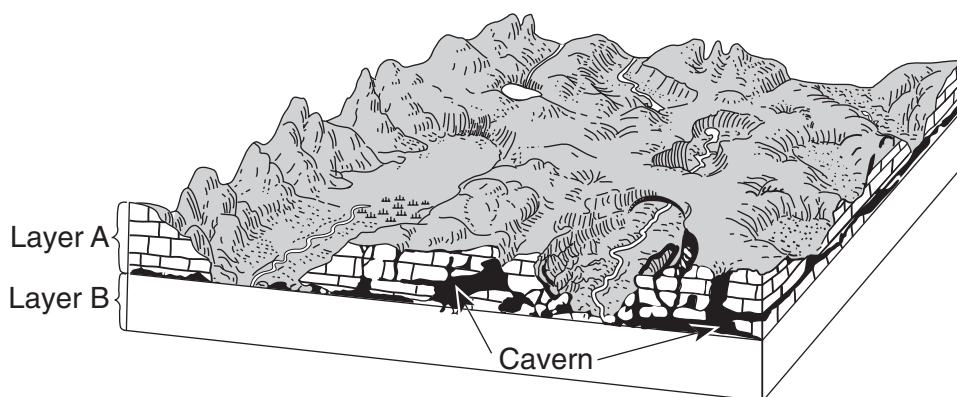
Base your answers to questions 4 and 5 on the hardness of the minerals talc, quartz, halite, sulfur, and fluorite.

4. On the grid, construct a bar graph to represent the hardness of these minerals.



5. Which mineral shown on the grid would be the best abrasive? State *one* reason for your choice.

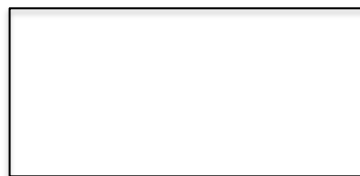
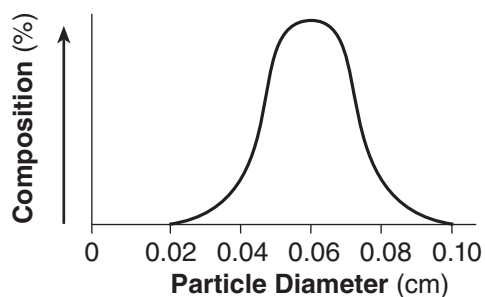
Base your answers to questions 6 through 8 on the block diagram below, which shows the landscape features of an area of Earth's crust. Two sedimentary rock layers, A and B, are labeled in the diagram. The rock symbol for layer B has been omitted.



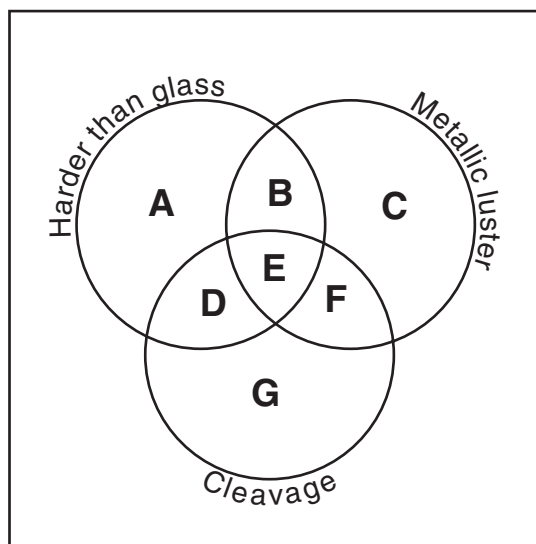
6. Identify the most abundant mineral in rock layer A.

7. Describe how the caverns formed in rock layer A.

8. The graph below shows the particle sizes that compose the **clastic sedimentary rock** in layer B. In the box below, draw the map symbol from the *Earth Science Reference Tables* that represent rock layer B.



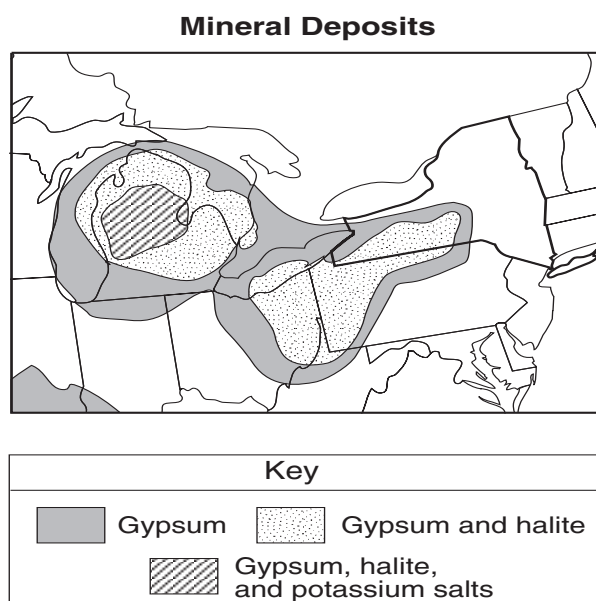
Base your answers to questions 9 and 10 on the diagram below of a mineral classification scheme that shows the properties of certain minerals. Letters A through G represent mineral property zones. Zone E represents the presence of all three properties. For example, a mineral that is harder than glass, has a metallic luster, but does not have cleave, would be placed in zone B. Assume that glass has a hardness of 5.5.



9. In which zone would the mineral potassium feldspar be placed?

10. State the name of *one* mineral listed on the *Properties of Common Minerals Table* that could *not* be placed in any of the zones.

Base your answers to questions 11 and 12 on the map below. The map shows the approximate area in a portion of North America where some sedimentary rock layers composed of gypsum, halite, and potassium salt minerals found in Earth's crust.



11. Identify *one* New York State landscape region in which deposits of gypsum and halite are commonly found.

12. Identify the sedimentary rock composed of halite and explain how this rock is usually formed.

Base your answers to questions 13 through 16 on the passage below.

Asbestos

Asbestos is a general name given to the fibrous varieties of six naturally occurring minerals used in commercial products. Most asbestos minerals are no longer mined due to the discovery during the 1970s that long-term exposure to high concentrations of their long, stiff fibers leads to health problems. Workers who produce or handle asbestos products are most at risk, since inhaling high concentrations of airborne fibers allows the asbestos particles to become trapped in the workers' lungs. Chrysotile is a variety of asbestos that is still mined because it has short, soft, flexible fibers that do not pose the same health threat.

13. State *one* reason for the decline in global asbestos use after 1980.
14. Chrysotile is found with other minerals in New York State mines located near 44° 30' N, 74° W. In which New York State landscape region are these mines located?
15. What determines the physical properties of minerals, such as the long, stiff fibers of some varieties of asbestos?
16. The chemical formula for chrysotile is $Mg_3Si_2O_5(OH)_4$. State the name of the mineral found on the *Earth Science Reference Tables* that is most similar in chemical composition.

Base your answers to questions 17 through 19 on the passage below.

Graywacke

Graywacke is a type of sandstone composed of a great variety of minerals. Unlike a "clean" sandstone where both the sand-sized grains and cement are composed mostly of quartz, graywacke is a "dirty" sandstone which can be composed of potassium feldspar, plagioclase feldspar, calcite, hornblende, and augite, as well as quartz.

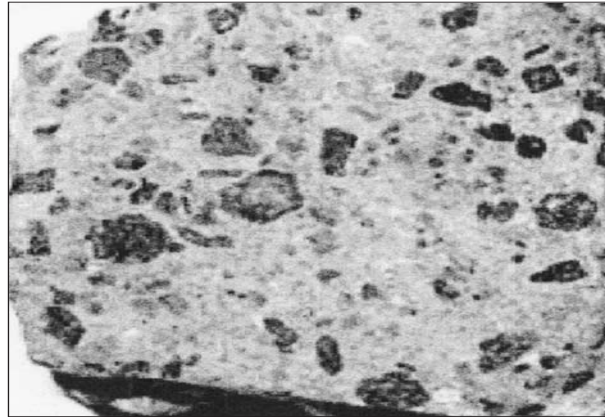
Graywacke can be used for paving highways. The hard, massive bedrock is first drilled and then blasted into large chunks. Stone crushers grind these chunks into pebble-sized pieces. Truckloads of the graywacke pebbles are then hauled to plants where asphalt for paving is made.

17. State *one* difference in the mineral composition of a "clean" sandstone and a "dirty" sandstone.
18. Identify *one* rock-forming process that must have occurred after the sediments were deposited to form greywacke.
19. State *one negative* environmental impact a greywacke quarry could have on the area where it is located.

Base your answers to questions 20 and 21 on the passage and photograph below. The passage describes the properties of porphyritic rocks. The photograph shows a sample of andesite rock that has a porphyritic texture.

Porphyritic Rocks

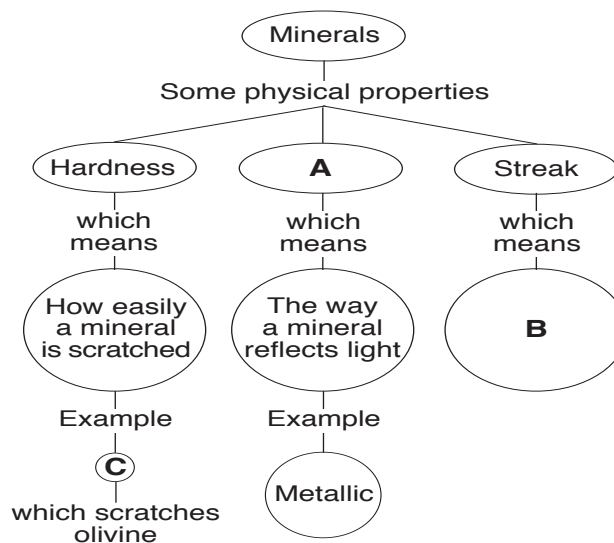
Igneous rocks that have two distinctly different crystal sizes have a porphyritic texture. They contain large, coarse-grained crystals called phenocrysts, which are visible to the naked eye. These crystals are surrounded by fine-grained crystals called groundmass.



20. Identify the evidence shown by the photograph that indicates that two different cooling events occurred during the formation of this rock.

21. The andesite sample in the photograph has a small percentage of quartz. List *three* other minerals that are found in this sample.

Base your answers to questions 22 through 24 on the chart below, which shows some physical properties of minerals and the definitions of these properties. The letters A, B, and C indicate parts of the chart that have been left blank. Letter C represents the name of a mineral.

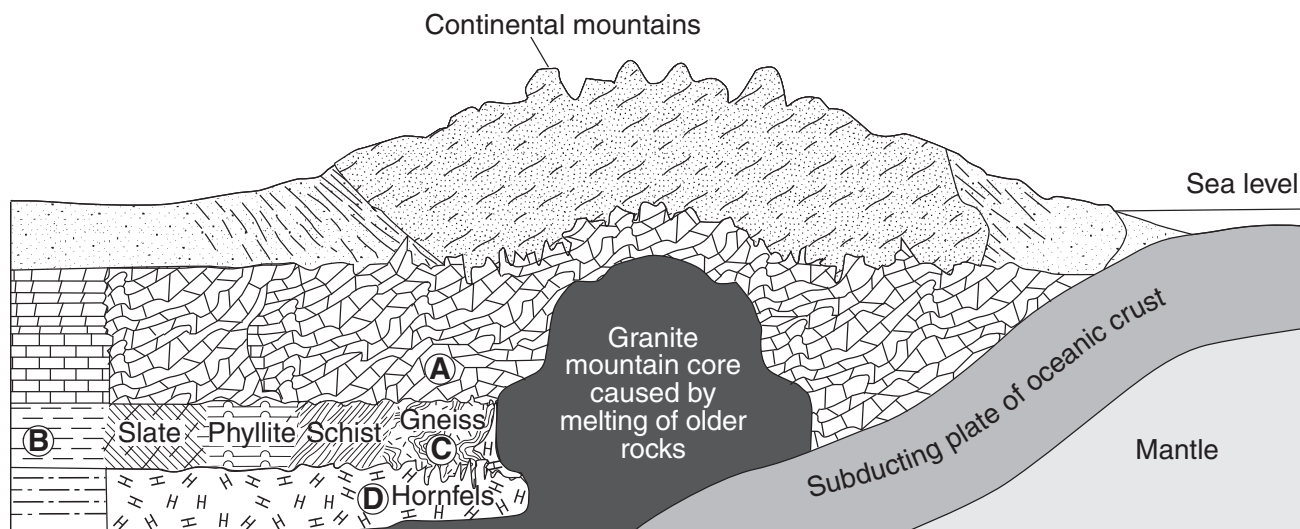


22. Which physical property of a mineral is represented by letter A?

23. State the definition represented by letter B.

24. Identify *one* mineral that could be represented by letter C.

Base your answers to questions 25 through 28 on the cross section below, which shows the bedrock structure of a portion of the lithosphere. Letters A through D represent locations in the lithosphere.



25. Identify *one* of the most abundant minerals in the metamorphic rock at location A.

26. Explain why the type of rock changes between locations B and C.

27. Identify the grain size of the metamorphic rock at location D.

28. Explain why the oceanic crust subducts beneath the continental crust when the two plates collide.