Name: _____

Date: _____ Period: _____

Review: Minerals and Rocks

1. Which rock would be the best source of the mineral garnet?
    a. basalt
    b. limestone
    c. schist
    d. slate

2. Which rock was subjected to intense heat and pressure but did not solidify from magma?
    a. sandstone
    b. schist
    c. gabbro
    d. rhyolite

3. The igneous rock gabbro most likely formed from molten material that cooled
    a. rapidly at Earth's surface
    b. rapidly at Earth's surface
    c. rapidly, deep underground
    d. slowly, deep underground

4. The minerals talc, muscovite mica, quartz, and olivine are similar because they
    a. have the same hardness
    b. are the same color
    c. contain silicon and oxygen
    d. break along cleavage planes

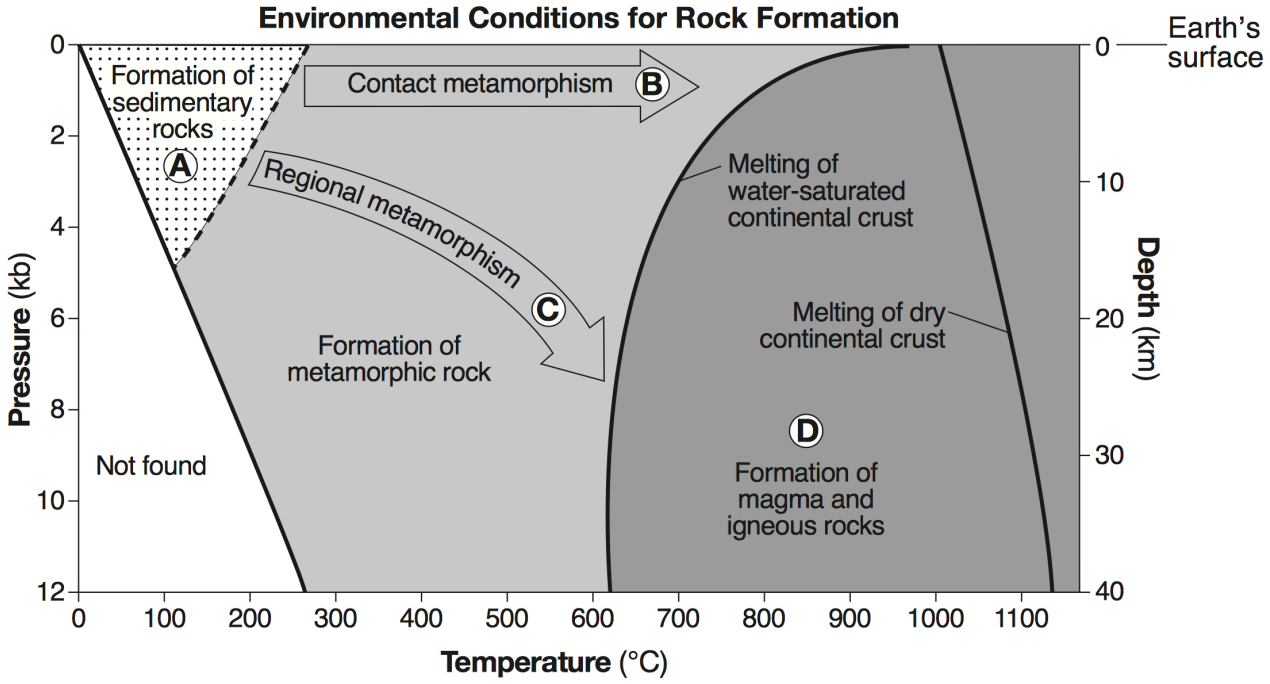
5. Which mineral is commonly mined as a source of the element lead (Pb)?
    a. galena
    b. quartz
    c. magnetite
    d. gypsum

6. Which characteristic do samples of the mineral pyroxene normally exhibit?
    a. yellow to amber color
    b. bubbling in hydrochloric acid
    c. cleaves at 56° and 124°
    d. hardness of 5 to 6

7. Which processes lead directly to the formation of igneous rock?
    a. weathering and erosion
    b. compaction and cementation
    c. heat and pressure
    d. melting and solidification

Review: Minerals and Rocks

Base your answers to questions 8 through 10 on the graph below and on your knowledge of Earth science. The graph shows the temperature, pressure, and depth environments for the formation of the three major rock types. Pressure is shown in kilobars (kb). Letters A through D identify different environmental conditions for rock formation.



8. Which rock is most likely to form directly from rock material at a depth of 30 km and a temperature of 1000°C?
    a. quartzite
    b. scoria
    c. shale
    d. granite

9. Which letter represents the environmental conditions necessary to form gneiss?
    a. A
    b. B
    c. C
    d. D

10. At what pressure and temperature is sand most likely to be compacted into sandstone?
    a. 2 kb and 150°C
    b. 6 kb and 200°C
    c. 10 kb and 400°C
    d. 12 kb and 900°C

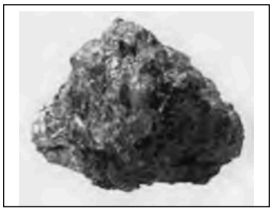
Review: Minerals and Rocks

Base your answers to questions 11 through 13 on the photographs below and on your knowledge of Earth science. The photographs show eight common rock-forming minerals.

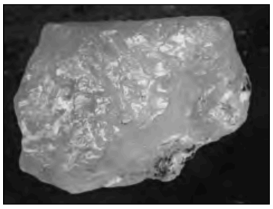
Biotite mica

Potassium feldspar

Olivine

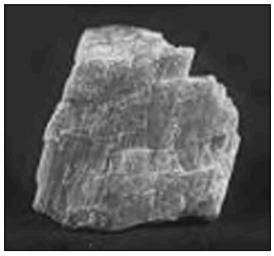


Quartz



Muscovite mica

Plagioclase feldspar



Amphibole

Pyroxene

11. Identify the mineral shown that can scratch all of the other minerals shown.

12. Identify the two minerals shown that exhibit fracture as a dominant form of breakage.

13. Identify the two most abundant elements, by mass, in Earth's crust that are part of the composition of all eight of these minerals.

Review: Minerals and Rocks

Base your answers to questions 14 through 16 on the table below and on your knowledge of Earth science. The table shows the elements and their percent compositions by mass in the five minerals present in a rock sample.

Elements and Their Compositions by Mass in Five Minerals

Minerals Present in Rock Sample	**Element** (percent by mass)									
	Al	Ca	Fe	H	K	Mg	Na	O	Si	Ti
Amphibole	6.2	3.0	29.7	0.2	–	3.7	1.8	31.7	12.8	10.9
Plagioclase feldspar	9.7	–	–	–	14.2	–	–	46.3	29.8	–
Garnet	10.9	–	33.8	–	–	–	–	38.7	16.6	–
Muscovite mica	20.3	–	–	0.5	9.8	–	–	48.2	21.2	–
Quartz	–	–	–	–	–	–	–	53.2	46.8	–

14. Identify one use for the mineral garnet.

15. Identify one mineral in this rock sample that can scratch the mineral olivine.

16. All five of the minerals listed in the table are silicate minerals because they contain the elements silicon and oxygen. State the name of one other mineral found on the “Properties of Common Minerals” chart that is a silicate mineral.