Earth Science Foundations Practice Test

1. The diagram below represents the mass and volume of a mineral sample being measured. These measurements were used to determine the density of the mineral sample.
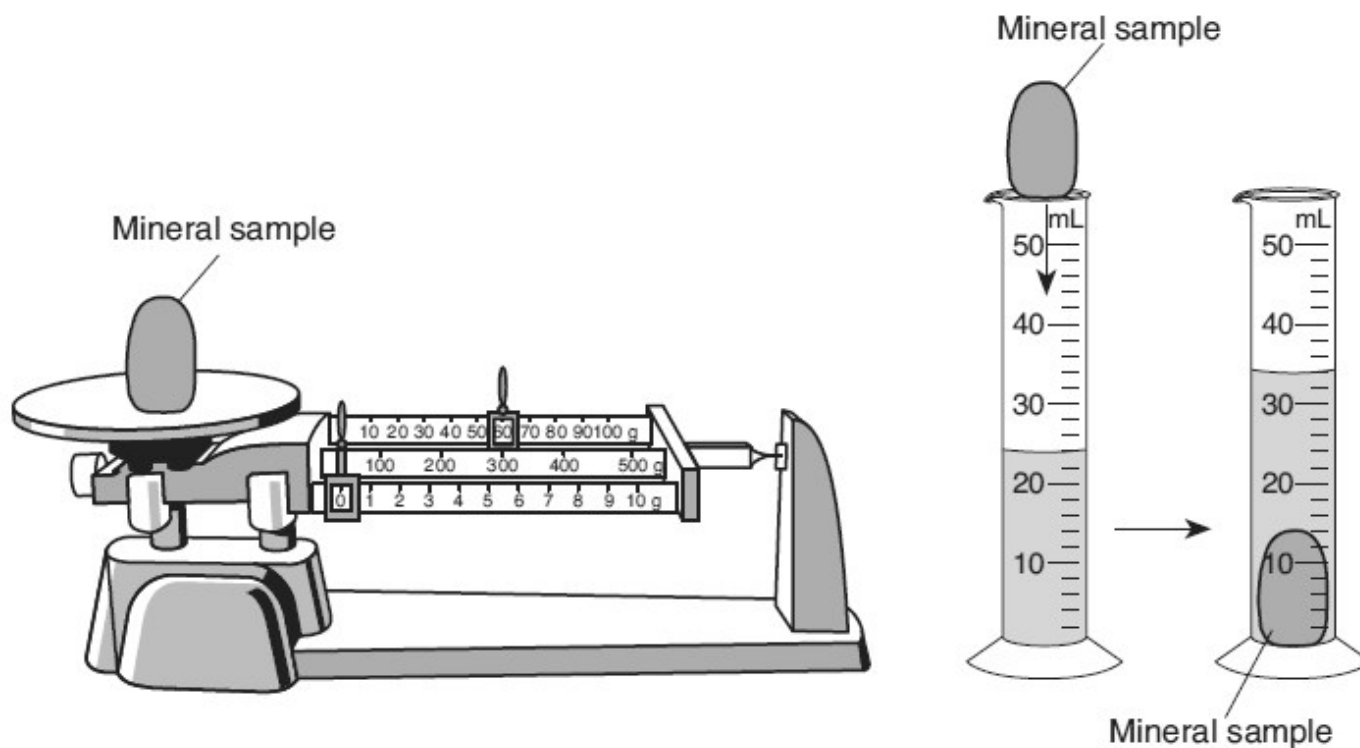
What is the density of this mineral sample?
1. 6 g/mL   2. 24 g/mL
3. 34 g/mL   4. 60 g/mL

2. What is the approximate density of a mineral with a mass of 262.2 grams that displaces 46 cubic centimeters of water?
1. 1.8 g/cm3   2. 5.7 g/cm3
3. 6.1 g/cm3   4. 12.2 g/cm3

3. Which event is cyclic and predictable?
   1. a volcano erupting above a subducting tectonic plate
   2. an earthquake occurring at the San Andreas Fault
   3. Jupiter's apparent movement across the night sky
   4. an asteroid striking Earth's surface

4. A student incorrectly measured the volume of a mineral sample as 63 cubic centimeters. The actual volume was 72 cubic centimeters. What was the student's approximate percent deviation (percentage of error)?
1. 9.0%   2. 12.5%
3. 14.2%   4. 15.3%

5. A student determines the density of a mineral to be 1.5 grams per cubic centimeter. If the accepted value is 2.0 grams per cubic centimeter, what is the student's percent deviation (percent error)?
1. 25.0%   2. 33.3%
3. 40.0%   4. 50.0%

Figure 1

Base your answer on the graph, which shows changes in the Sun's magnetic activity and changes in the number of sunspots over a period of approximately 100 years. Sunspots are dark, cooler areas within the Sun's photosphere that can be seen from Earth.

Solar Sunspots and Magnetic Activity
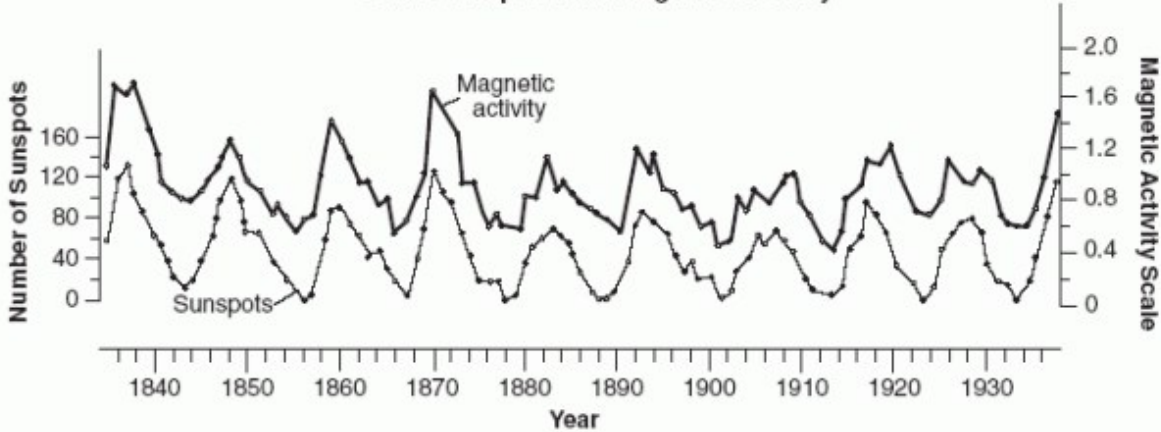
6. **[Refer to figure 1]**

Which graph best represents the relationship between the number of sunspots and the amount of magnetic activity in the Sun?

1.

2.

3.

4.
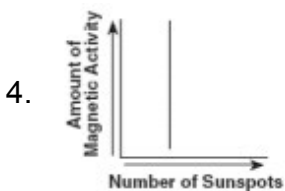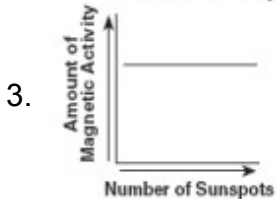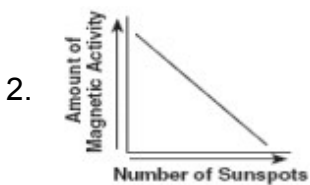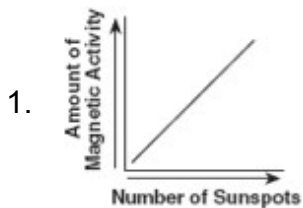
7. **[Refer to figure 1]**

The graph indicates that years having the greatest number of sunspots occur

1. randomly and unpredictably
2. precisely at the beginning of each decade
3. in a cyclic pattern, repeating approximately every 6 years
4. in a cyclic pattern, repeating approximately every 11 years

8. A person incorrectly measured the length of a room as 13.0 meters when the actual length was 12.0 meters. What is the person's approximate percent deviation (percentage of error)?
1. 1.0 %   2. 5.9 %
3. 7.7 %   4. 8.3 %

9. Which statement about a rock sample is most likely an inference?
   1. The rock has flat sides and sharp corners.
   2. The rock is made of small, dark-colored crystals.
   3. The rock has thin, distinct layers.
   4. The rock has changed color due to weathering.

10. Science investigators initially use classification systems to
   1. extend their powers of observation
   2. make more accurate inferences
   3. organize their observations in a meaningful way
   4. make direct comparisions with standard units of measurement

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Figure 2

The diagrams represent particles of the same type of sedimentary rock material collected from a streambed. The diagrams are drawn to scale.

Particle A   Particle B   Particle C

(drawn to scale)

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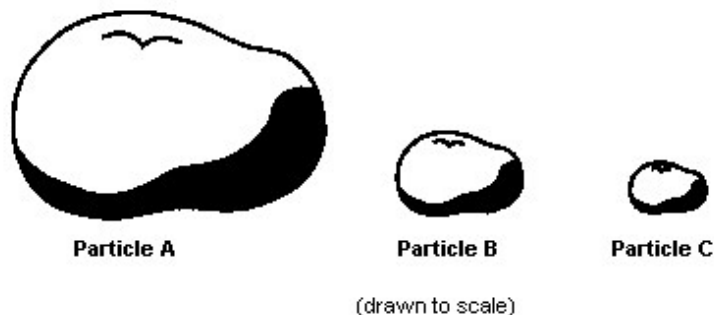
11. [Refer to figure 2]

Particle A has a density of 2.7 grams per cubic centimeter and a volume of 15.0 cubic centimeters. What is the mass of this particle?
1. 5.5 g   2. 15.0 g
3. 40.5 g   4. 109.3 g

12. The best example of a noncyclic event is
   1. a change of seasons
   2. a volcanic eruption
   3. a phase change of the Moon
   4. an apparent star movement

13. The rising and setting of the Sun are examples of
1. noncyclic events   2. unrelated events
3. predictable changes   4. random motion

14. Which statement about a rock sample is an inference?
   1. The rock scratches a glass plate.
   2. The rock was formed 100 million years ago.
   3. A balance indicates the rock's mass is 254 grams.
   4. The rock has no visible crystals and is red.

15. The grouping of objects or events based on similar characteristics is called
1. observation   2. interpretation
3. measurement   4. classification

16. Which statement about a stream is an inference rather than an observation?
   1. It is clear enough to see the bottom.
   2. The velocity is 38 cm/sec.
   3. The water temperature is 15°C.
   4. It will dry up next summer.

17. The diagram represents a solid object with a mass of 120 grams.
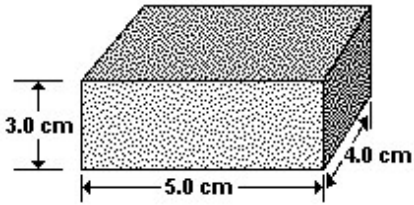
What is the density of the object?
1. 0.50 g/cm3   2. 2.0 g/cm3
3. 5.0 g/cm3   4. 6.0 g/cm3

18. A pebble has a mass of 35 grams and a volume of 14 cubic centimeters. What is its density?
1. 0.4 g/cm3   2. 2.5 g/cm3
3. 490 g/cm3   4. 4.0 g/cm3

19. As shown in the diagram, an empty 1,000.-milliliter container has a mass of 250.0 grams. When filled with a liquid, the container and the liquid have a combined mass of 1,300. grams.

EMPTY
Mass = 250.0 g

FILLED
Mass = 1300. g
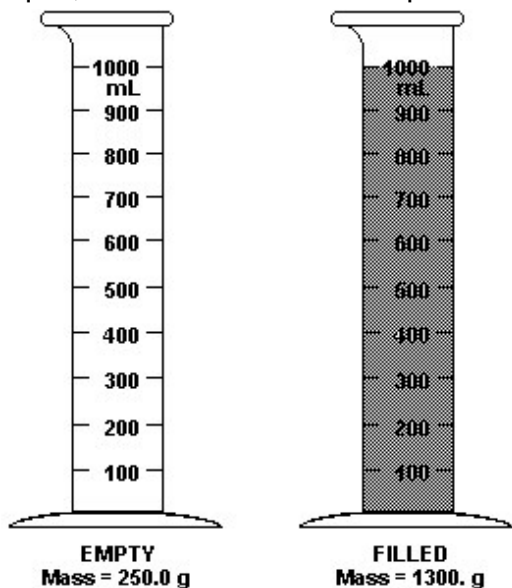
What is the density of the liquid?

1. 1.00 g/mL   2. 1.05 g/mL

3. 1.30 g/mL   4. 0.95 g/mL

20. A student incorrectly converted 20°C to 64°F instead of 68°F. What is the student's approximate percent error?

1. 44%   2. 5.9%

3. 6.3%   4. 4%