

Periodic Table Review

Teacher Answer Key
November 23, 2011

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1. Which element is a solid at STP and a good conductor of electricity?

- 1. iodine
- 2. mercury
- 3. nickel
- 4. sulfur

3 Metals are good conductors of electricity. Both mercury and nickel are metals, but nickel is a solid at STP while mercury is a liquid.

- 1. Rb
- 2. Rn
- 3. Si
- 4. Sr

3 Refer to the accompanying diagram, which represents a portion of the Periodic Table of the Elements:

The metalloids—those elements that have both metallic and nonmetallic properties—are found in the shaded boxes. Of the choices given, only choice (3), Si, is a metalloid.

- 1. atomic numbers
- 2. atomic masses
- 3. electronegativities
- 4. structural arrangements

4 Graphite and diamond are known as allotropes—forms of an element in which the atoms have different structural arrangements in space.

- 1. Magnesium is malleable.
- 2. Magnesium conducts electricity.

3 A chemical property is one in which the substance is changed when the property is investigated. In other words, a chemical reaction occurs. When magnesium atoms react with an acid, hydrogen gas and magnesium ions are formed.

Wrong Choices Explained:

(1), (2), (4) Malleability, conductivity, and boiling point are physical properties. The magnesium atoms are not changed by these properties.

- 1. A sulfur atom has 6 valence electrons.
- 2. A sulfur atom has 16 neutrons.

1 The group numbers of the representative elements are related to the number of valence electrons in an atom of the element, as shown in the accompanying table:

- 1. Sodium has a larger atomic radius and is more metallic.
- 2. Sodium has a larger atomic radius and is less metallic.

1 See Reference Table S and the Periodic Table of the Elements. Sodium has a larger atomic radius than

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2. Which element has both metallic and nonmetallic properties?

- 3. Si
- 4. Sr

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3. The carbon atoms in graphite and the carbon atoms in diamond have different

- 3. electronegativities
- 4. structural arrangements

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4. Which statement describes a chemical property of the element magnesium?

- 3. Magnesium reacts with an acid.
- 4. Magnesium has a high boiling point.

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5. Which statement explains why sulfur is classified as a Group 16 element?

- 3. Sulfur is a yellow solid at STP.
- 4. Sulfur reacts with most metals.

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6. How do the atomic radius and metallic properties of sodium compare to the atomic radius and metallic properties of phosphorus?

- 3. Sodium has a smaller atomic radius and is more metallic.
- 4. Sodium has a smaller atomic radius and is less metallic.

1

7. Which group on the Periodic Table of the Elements contains