

Assessment**Chapter 5****BLM 5-9****Chapter 5 Test****Goal**

To demonstrate and assess your understanding of the concepts studied in Chapter 5.

What To Do

Answer each question in the space provided. If needed, use a separate piece of paper for your calculations and answers and attach it to this page. You can use a calculator and the Periodic Table to help you.

1. Explain briefly how a mass spectrometer separates the isotopes of an element.

2. Find the average atomic mass for chromium from the data provided.

Isotope	Atomic Mass (u)	Percentage Abundance
Cr-50	49.95	4.3
Cr-52	51.94	83.7
Cr-53	52.94	9.6
Cr-54	53.94	2.4

3. A sample of platinum, Pt, contains $(8.43)(10^{25})$ atoms. How many moles of platinum are present?

4. Find the molar mass of ammonium sulfide, $(\text{NH}_4)_2\text{S}$.

5. State two other equivalent descriptions of the following amount of substance:
1 mole of water.

Assessment**Chapter 5****BLM 5-9****Chapter 5 Test** (continued)

6. What is the mass of 3.71 moles of ammonia, NH_3 ?
- _____
7. How many sugar molecules are in a “spoonful of sugar,” if the sugar is glucose, $\text{C}_6\text{H}_{12}\text{O}_6$, and the spoon hold 5.00 g of sugar?
- _____
8. State the definition of the mole and explain why it was convenient to define it this way.
- _____
- _____
- _____
9. Consider one mole of nitric acid, HNO_3 .
- (a) How many moles of oxygen atoms does it contain?
- _____
- (b) How many moles of atoms does it contain in total?
- _____
- (c) How many atoms does it contain in total?
- _____