

Name _____ Date _____ Class _____

CHAPTER 2 **STUDY GUIDE FOR CONTENT MASTERY**

Section 2.3 continued

In your textbook, read about significant figures.

Use each of the terms below just once to complete the statements.

counting numbers	estimated	non-zero	zeros
scientific notation	significant figures	placeholders	

- The digits that are reported in an answer are called significant figures.
- The numeral 9.66 has three significant figures, two known figures and one estimated figure.
- Non-zero numbers are always significant.
- All final zeros to the right of the decimal place are significant.
- Zeros that act as placeholders are not significant.
- Counting numbers have an infinite number of significant figures.
- When you convert to scientific notation, you remove the placeholder zeros.

In your textbook, read about rounding off numbers.

- Round the following to four significant figures.
 - 12.555 km 12.56
 - 1.0009 1.001
 - 99,999 100,000
 - 23,342,999 23,340,000
- Round 12,783,456 to the requested number of significant figures.
 - 2 significant figures 13
 - 5 significant figures 12,783
 - 6 significant figures 12,783.5
 - 7 significant figures 12,783.46
- Round 120,752,416 to the requested number of significant figures.
 - 3 significant figures 121
 - 4 significant figures 120.8
 - 5 significant figures 120,750
 - 7 significant figures 120,752.4
- Complete the following calculations. Round off the answers to the correct number of significant figures.
 - $51.2 \text{ kg} + 64.44 \text{ kg}$ 115.6 kg
 - $6.435 \text{ cm} - 2.18 \text{ cm}$ 4.25 cm
 - $16 \text{ m} \times 2.82 \text{ m} \times 0.05 \text{ m}$ 2 m³
 - 3.46 m/1.82 s 1.90 m/s

Study Guide for Content Mastery Answer Key

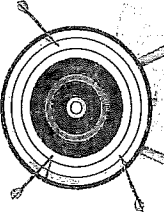
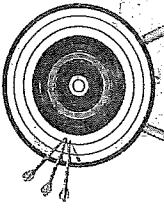
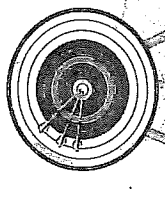
Name _____ Date _____ Class _____

CHAPTER 2 **STUDY GUIDE FOR CONTENT MASTERY**

Section 2.3 How reliable are measurements?

In your textbook, read about accuracy and precision.

- Use the terms *precise* and *accurate* to describe the following figures. You may use both terms for some figures. If a term does not apply to a figure, leave the space blank.

		
a. _____	b. <u>precise</u>	c. <u>accurate</u>
		<u>precise</u>

Circle the letter of the choice that best completes the statement or answers the question.

- The difference between an accepted value and an experimental value is called a(n) (a) error.
 - error.
 - percent error.
 - measured value.
 - precise measurement.
- The ratio of an error to an accepted value is called a(n) (c) percent error.
 - accuracy-to-precision value.
 - precision.
 - percent error.
 - accuracy.
- When you calculate percent error, you can ignore the (d) plus and minus signs.
 - accepted values.
 - measured values.
 - experimental values.
 - plus and minus signs.
- If two measurements are very close to each other, then they are (b) precise.
 - accurate.
 - precise.
 - both accurate and precise.
 - accepted values.
- Which of the following is most likely to produce data that are not precise?
 - a balance that is not set to zero
 - not reading a graduated cylinder at eye level
 - (c) altering the procedure during an experiment
 - making the same error with each trial