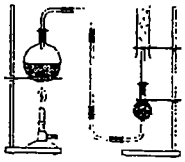

Chemistry Connections to Our Changing World

Worksheet on Significant Digits

Refer to pages 25 - 30 in your text and answer the following questions.

Determine the number of significant digits in each of the following measurements;

1.	5.432 g	_____	11.	40.319 g	_____
2.	146 cm^3	_____	12.	3.284 000 cm	_____
3.	0.189 kg	_____	13.	429.03 g	_____
4.	2 873.0 cm^3	_____	14.	99.9 mL	_____
5.	0.000 235 g	_____	15.	1.404 000 L	_____
6.	2500 cm	_____	16.	2 500.0 g	_____
7.	48.571 93 m^3	_____	17.	3058 m	_____
8.	300 000 240. km	_____	18.	0.002 300 mg	_____
9.	7.500 mg	_____	19.	450 003.400 L	_____
10.	1 003 L	_____	20.	1.000 g	_____

Add or subtract the following measurements as indicated. Then round off the answer to the proper number of digits.

20.	12 cm + 0.031 cm + 7.969 cm =	_____	≈ _____
21.	3.419 g + 3.912 g + 7.0518 g + 0.000 13 g =	_____	≈ _____
22.	0.085 cm + 0.062 cm + 0.14 cm =	_____	≈ _____
23.	143.0 cm + 289.25 cm + 7.051 8 cm =	_____	≈ _____
24.	30.5 g + 16.82 g + 41.07 g + 85.219 g =	_____	≈ _____
25.	29.49 cm + 83.46 cm + 107.05 cm + 26.617 cm =	_____	≈ _____
26.	0.065 3 g + 0.085 38 g + 0.076 54 g + 0.043 2 g =	_____	≈ _____
27.	63.489 mL + 126.2 mL + 68.85 mL + 12.05 mL =	_____	≈ _____
28.	41.025 cm - 23.28 cm =	_____	≈ _____
29.	289 g - 43.7 g =	_____	≈ _____
30.	145.63 mL - 28.9 mL =	_____	≈ _____
31.	62.47 g - 39.9 g =	_____	≈ _____
32.	40.008 mL - 29.094 1 mL =	_____	≈ _____
33.	13.05 cm + 2.2 cm =	_____	≈ _____
34.	14 600 km + 325 km =	_____	≈ _____
35.	55.47 g - 24.6 g =	_____	≈ _____

Multiply or divide as directed. Then round off your answer to the proper number of significant digits. Remember to include the proper unit of the answer.

36. $2.89\ \text{cm} \times 4.01\ \text{cm} =$ _____ ≈ _____

37. $3.08\ \text{m} \times 1.2\ \text{m} =$ _____ ≈ _____

38. $20.8\ \text{dm} \times 123.1\ \text{dm} =$ _____ ≈ _____

39. $5.0\ \text{cm} \times 5\ \text{cm} =$ _____ ≈ _____

40. $17.3\ \text{cm} \times 6.2\ \text{cm} =$ _____ ≈ _____

41. $5.00\ \text{mm} \times 7.321\ 6\ \text{mm} =$ _____ ≈ _____

42. $5\ \text{cm} \times 5\ \text{cm} =$ _____ ≈ _____

43. $5.0\ \text{cm} \times 5.0\ \text{cm} =$ _____ ≈ _____

44. $150.0\ \text{m} \times 4.00\ \text{m} =$ _____ ≈ _____

45. $8.071\ \text{cm}^2 \div 4.216\ \text{cm} =$ _____ ≈ _____

46. $4.23\ \text{m}^2 \div 18.941\ \text{m} =$ _____ ≈ _____

47. $0.057\ \text{mL} \times \frac{760\ \text{mm}}{740\ \text{mm}} \times \frac{273\ \text{K}}{250\ \text{K}} =$ _____ ≈ _____

48. $142.0\ \text{mL} \times \frac{745\ \text{mm}}{785\ \text{mm}} \times \frac{300.0\ \text{K}}{295\ \text{K}} =$ _____ ≈ _____

49. The density of copper is 8.96 g/cm^3. If a rectangular sheet of copper is 10.3 cm wide, 46.1 cm long, and 0.14 cm thick, what is the mass of the copper?

50. Chloroform is a liquid with a sticky sweet odour that was once used as a surgical anesthetic. If the density of chloroform is 1.49 g/mL, what is the volume of 25 g of chloroform?

51. A brick used in the construction of pottery kilns is 11.0 cm wide, 6.0 cm tall, and 22.7 cm long. The brick has a mass of 2950 g. What is the density of the brick?

52. A friend shows you a gold ring and asks you to analyze it. You find its mass to be 58.21 g and its volume to be 3.64 cm^3.
(a) Calculate the density of the ring.
(b) Is it really pure gold? Why or why not? (Hint: look on page 35 of your text)