Name _____ Date _____ Class _____

1–6 Practice Problems

Identify the number of significant digits in each of the following measurements. Write the number in the space provided.

1. 520 mL _____
2. 0.0102 ms _____
3. 0.230 kg _____
4. 25,600 L _____
5. 10.002 ns _____
6. 0.451 Pa _____
7. 0.001 cm _____

Perform the following calculations and round off the answer to the correct number of significant digits.

8. 0.3287 g x 45.2 g = ?

9. 125.5 kg + 52.68 kg + 2.1 kg = ?

10. $\dfrac{52.8\ \text{Pa} + 3.0025\ \text{Pa}}{253.4\ \text{Pa}} = ?$

11. (0.12 g + 5.16 g) x (45.56 g – 93.0 g) = ?

12. 68.32 ns + (–1.001 ns) + (–0.00367 ns) + (–678.1 ns) = ?

13. 0.258 mL ÷ 0.36105 mL = ?

14. (1250 cal – (234.207 cal ÷ 52.69 cal)) = ?

15. $\dfrac{78.26\ \text{L} - 89.50\ \text{L}}{678.2\ \text{L} + 9511\ \text{L}} = ?$

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1–6 *Practice Problems (continued)*

Express each of the following numbers in scientific notation.

16. 8960 _____

17. 0.000 23 _____

18. 86,000 _____

19. 36,000,000 _____

20. 0.000 000 025 3 _____

Check the following equalities for errors. If an answer is correct, write "correct" in the space provided. If an answer is incorrect, rewrite it to make it correct.

_____ **21.** $45{,}630{,}000 = 4.563 \times 10^{7}$

_____ **22.** $0.000\,253 = 2.53 \times 10^{-3}$

_____ **23.** $680{,}500{,}000 = 68.05 \times 10^{8}$

Solve each of the following problems as directed. Show all your work.

24. An unknown liquid has a mass of 30.6 g and a volume of 52.3 mL. What is the density of the liquid?

25. Iron has a density of 7.86 g/cm^3 . Could a block of metal with a mass of 18.2 g and a volume of 2.56 cm^3 be iron? Explain.

26. The density of gold is 19.3 g/cm^3 . What is the mass of 11.3 cm^3 of gold?

27. The density of ice is 0.917 g/cm^3 . How much volume does 52.3 g of ice occupy?

28. If 1.35 g of aluminum occupies 0.500 cm^3, what is the density of aluminum?