

Chemistry Module 1 Homework

Assignment #2:

Read pages 17 – 31.

18. Convert the following numbers to scientific notation:

- a. 409.56 4.0956×10^2 c. 0.0085 8.5×10^{-3}
b. 5,003,000 5.003×10^6 d. 0.314 3.14×10^{-1}

19. Convert the following numbers to decimal:

- a. 7.21×10^3 7210 c. 8.3×10^5 830,000
b. 3.901×10^{-4} 0.0003901 d. 2.090×10^{-4} 0.0002090

20. Explain the difference between accuracy and precision.

Accuracy is how close a measurement is to the true value.
Precision is how close measurements are together.

21. How many significant figures are in the following numbers?

- a. 34.10 4 d. 0.023090 5
b. 0.0018 2 e. 6.2×10^4 2
c. 209.400 6 f. 2.040×10^7 4

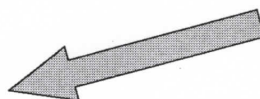
22. Perform the calculations and round your answers to the correct number of significant figures. For addition and subtraction, your answer must match the least precise value.

- a. $8.452 \text{ g} + 14.23 \text{ g} + 15 \text{ g} = 38$
b. $580.2 \text{ L} - 267.834 \text{ L} = 312.4$

23. Perform the calculations and round your answers to the correct number of significant figures. For multiplication and division, your answer must match the value with the fewest sig figs.

- a. $3.42 \text{ cm} \times 2.6 \text{ cm} = 8.9$
b. $48.742 \text{ kg} \div 0.214 \text{ kg} = 228$

24. Why does a cork float on water? Cork is less dense than water.



ALWAYS show
calculations for
math problems.

25. Lead has a density of 11.42 grams per mL and gold has a density of 19.32 grams per cc. If you made two identical statues, one out of lead and one out of gold, which statue would be heavier?

Gold

26. Silver has a density of 10.49 g/cm³. If you make a statue out of 850.0 cm³ of silver, what is the statue's mass?

8916.5 g

27. Gold has a density of 19.32 grams per mL. If a gold platter has a mass of 425 g, what is its volume?

22.0 mL

28. Would the density of a person be the same on the surface of the earth and on the surface of the moon where there is less gravity?

Yes

29. A tuber has a mass of 107.6 kg and a volume of 0.095 m³. The water in the Comal River has a density of 1005 kg/m³. Will the tuber float or sink when he falls out of his tube at the Tube

Chute? Tuber Density = $\frac{107.6 \text{ kg}}{0.095 \text{ m}^3} = 1132.6$ which is greater than water's density. He would sink.

30. Honors – The mass of a cube of iron is 950.0 g. What is the mass of a cube of lead that has the same dimensions? (Density of iron = 7.87 g/cm³, density of lead = 11.4 g/cm³)

1380 g

31. Honors – A plastic ball with a volume of 39.2 cm³ has a mass of 28.56 g.

a. Would the ball sink or float in water? Float

b. Would this ball sink or float in a container of gasoline? (Density of gasoline = 0.67 g/cm³).

Sink

32. Honors – How large a container, in liters, would you need to hold 12.5 kg of gasoline? (Density of gasoline = 0.67 g/cm³)

19 Liters