

In-class CPS Quick Questions: 1-10 Homework for CPS: 11-19 Lab-type: 20-25

- 1 A scientist obtains the number 1250.37986 on a calculator. If this number actually has four (4) significant figures, how should it be written?
 - A 1251
 - B 1250.4
 - C 1250.3799
 - D 1.250×10^3

- 2 How many significant figures are there in the number 0.0322?
 - A 2
 - B 3
 - C 4
 - D 5

- 3 Using the rules of significant figures, calculate the following: $(6.167+83)/510$
 - A 17
 - B 17.48
 - C 17.5
 - D 18

- 4 Using the rules of significant figures, calculate the following: $4.0021 - 0.004$
 - A 3.998
 - B 3.9981
 - C 4.00
 - D 4.0

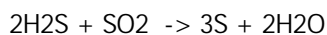
- 5 The average mass of a carbon atom is 12.011. Assuming you were able to pick up only one carbon unit, the chances that you would randomly get one with a mass of 12.011 is
 - A 0%
 - B 0.011%
 - C about 12%
 - D 12.011%

- 6 How many oxygen atoms are there in one formula unit of $\text{Ca}_3(\text{PO}_4)_2$?
 - A 2
 - B 4
 - C 6
 - D 8

- 7 Naturally occurring element X exists in three isotopic forms: X-28 (27.977 amu, 92.21% abundance), X-29 (28.976 amu, 4.70% abundance), and X-30 (29.974 amu, 3.09% abundance). What is the atomic weight of X? (You shouldn't need a calculator for this one.)
- A 28.1 amu
 - B 36.2 amu
 - C 54.0 amu
 - D 72.7 amu
- 8 Which of the following is a strong acid?
- A HF
 - B KOH
 - C HClO₄
 - D HClO
- 9 The oxidation state of iodine in IO₃⁻ is:
- A +3
 - B -3
 - C +5
 - D -5
- 10 Balance the following reaction in aqueous acid solution with the lowest possible numbers:
- $$\text{NO}_3^- + \text{I}^- \rightarrow \text{IO}_3^- + \text{NO}_2$$
- The coefficient of water is:
- A 1
 - B 2
 - C 3
 - D 4
- 11 Convert 974036 mm to km.
- A 974036000 km
 - B 9744036 km
 - C 974.036 km
 - D 0.974036 km
- 12 Which one of the following is incorrectly named?
- A Pb(NO₃)₂, lead(II) nitrate
 - B PO₄³⁻, phosphate ion
 - C Mg(OH)₂, magnesium hydroxide
 - D NO₃⁻, nitrite ion

- 13 All of the following are in aqueous solution. Which one is incorrectly named?
- A HBr, bromic acid
 - B H₂SO₃, sulfurous acid
 - C HNO₂, nitrous acid
 - D HClO₃, chloric acid
- 14 A sample of ammonia has a mass of 56.6 g. How many molecules are in this sample?
- A 3.32 molecules
 - B 1.78×10^{24} molecules
 - C 2.00×10^{24} molecules
 - D 17.03×10^{24} molecules
- 15 Roundup, an herbicide manufactured by Monsanto, has the formula: C₃H₈NO₅P
How many moles of molecules are there in a 500.-g sample ?
- A 0.338
 - B 1.75
 - C 2.96
 - D 84.5
- 16 How many atoms of hydrogen are present in 6.0 g of water?
- A 7.2×10^{24}
 - B 4.0×10^{23}
 - C 2.0×10^{23}
 - D 0.66
- 17 The molar mass of an insecticide, dibromoethane, is 187.9. Its molecular formula is C₂H₄Br₂. What percent by mass of bromine does dibromoethane contain?
- A 37.8%
 - B 42.5%
 - C 85.0%
 - D 89.3%
- 18 A 0.4647-g sample of a compound known to contain only carbon, hydrogen, and oxygen was burned in oxygen to yield 0.8635 g of CO₂ and 0.1767 g of H₂O. What is the empirical formula of the compound?
- A CHO
 - B C₂H₂O
 - C C₃H₃O₂
 - D C₆H₃O₂

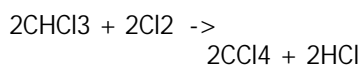
- 19 SO₂ reacts as follows:



When 7.50 g of H₂S reacts with 12.75 g of SO₂, which statement applies?

- A 6.38 g of sulfur are formed.
- B 10.6 g of sulfur are formed.
- C 0.0216 moles of H₂S remain.
- D SO₂ is the limiting reagent.

- 20 The reaction of 11.9 g of CHCl₃ with excess chlorine produced 12.6 g of CCl₄, carbon tetrachloride:



What is the percent yield?

- A 27.4%
 - B 46.2%
 - C 82.2%
 - D 113%
- 21 How many grams of NaCl are contained in 350. mL of a 0.250 M solution of sodium chloride?
- A 5.11 g
 - B 14.6 g
 - C 41.7 g
 - D 87.5 g

- 22 What mass of calcium chloride, CaCl₂, is needed to prepare 2.850 L of a 1.56 M solution?

- A 25.9 g
 - B 60.8 g
 - C 111 g
 - D 493 g
- 23 What volume of 18.0 M sulfuric acid must be used to prepare 15.5 L of 0.195 M H₂SO₄?
- A 226 mL
 - B 168 mL
 - C 92.3 mL
 - D 0.336 L

- 24 How many grams of NaOH are contained in 5.0×10^2 mL of a 0.80 M sodium hydroxide solution?
- A 16 g
 - B 20. g
 - C 64 g
 - D 80. g
- 25 Diabetics often need injections of insulin to help maintain the proper blood glucose levels in their bodies. How many moles of insulin are needed to make up 45 mL of 0.0052 M insulin solution?
- A 6.0×10^2 mol
 - B 1.7×10^{-4} mol
 - C 2.3×10^{-4} mol
 - D 4.6×10^{-4} mol