1. \( \frac{3.23 \times 10^{-4}}{2.67 \times 10^5} = \)

2. How many hydrogen, oxygen, carbon and/or nitrogen atoms are in 2.5 moles of methane, \( \text{CH}_4 \).

3. In every day life, which of the following atoms are more likely to be in the form of cations, anions, or neutral atoms? \( \text{Na, Br, Ar} \).

4. If enough water is added to 0.13 mole of \( \text{NaCl} \) to achieve a total liquid volume of 100 mL, what is the molarity of the resulting solution?

5. Under 1.0 atm pressure, propane boils at \(-42.1^\circ \text{C}\). What is its boiling point in \( \text{K} \)?

6. Solve for \( x \): \( (x - 1.34)(x + 1.34) = 19.55 \)

7. Evaluate \( A \) and \( B \) in the following chemical equation: \( \text{H}_2 + \text{AO}_2 = \text{BH}_2\text{O} \)

8. The average value of 6 coins is 8.33 cents. 5 of the coins are nickels. What is the sixth coin?

9. 1.0 atm of nitrogen gas is placed in a steel bulb at 298 K. Next, the temperature is increased to 325 K, (The volume of the bulb remains constant to a good approximation.) Will the gas pressure in the bulb increase, or decrease? Calculate the final pressure according to the ideal gas law: \( PV = nRT \).

10. What is the \( \text{H}^+ \) concentration in a 2.0 M solution of hydrochloric acid, \( \text{HCl (aq)} \).

11. Define Co and CO.

**Answers:** 1) 86.2 (make sure you put the right number of significant figures for this and the following problems!) 2) \( 1.5 \times 10^{24} \) C atoms, \( 6.0 \times 10^{24} \) H atoms, 0 N or O atoms. 3) Na will be in the form of cations, Br in the form of anions, Ar will be neutral. 4) 1.3 M 5) 231.2 K 6) 4.62 7) A = \( \frac{1}{2} \), B = 1 8) a quarter 9) The pressure will increase. You should know this before doing a calculation. The calculation tells you that it increases to 1.09 atm. 10) 2M 11) Co is the symbol for cobalt atoms, CO is the symbol for carbon monoxide molecules.