**Review for Final – Topics, 2024 – Answers**

1) Using the combined gas law, and ignoring P, you find the volume to be 3.24 L

2) Using PV = nRT, you’ll find that you make 0.072 moles of N2, and then when you convert this to grams you’ll find that you make 2.01 grams.

3) There’s a lot of space between molecules and they don’t interact with each other much.

4) The temperature scale has to start at absolute zero – this is true for Kelvin and not degrees Celsius.

5) Ionic compounds consist of lots of cations and anions all stuck tightly together. This means that lots of energy is required to pull them apart. On the other hand, covalent molecules exist as molecules that don’t really stick to each other much, which means it doesn’t take much energy to pull them apart.

6) Covalent compounds don’t have either moving electrons (their bonds are not delocalized) or ions.

7) sodium nitrate = 85.0 g/mol; lead (IV) sulfate = 399 g/mol

8) ionic bond: Bond where cations and anions stick to each other via electrostatic interactions; covalent bond: two shared electrons that hold two atoms together; polarity: when electrons spend more time in one part of a molecule than another; mole: 6.02 x 1023 things; molar mass: The mass of a mole of things; ideal gas: Gas that follows the kinetic molecular theory of gases; conductivity: Ability to conduct electricity; brittle: easily broken/shattered; malleable: bendy

9) 4.09 moles (the molar mass of lithium sulfate is 109.9 g/mol)

10) 28,350 grams (the molar mass of HNO3 is 63 g/mol)

11) 6,1,2,3

1,3,2,2

8,1,8,4

1,3,1,3

1,2,3,2

2,9,6,6

2,3,6,1

1,2,1,2