Calculations around the mole (answers)

1. Find the molar mass for the following:
2. Sodium chloride (58.44 g/mol)
3. Silver nitrate (169.88 g/mol)
4. Carbon dioxide (44.01 g/mol)
5. Triphosphorus dichloride (163.81 g/mol)
6. Zinc sulfate (161.44 g/mol)
7. Convert the following into moles
8. 2.6 g of water (0.14 mol)
9. 4.3 g of Magnesium sulfide (0.076 mol)
10. 1.9 g of barium nitrate (7.3 x 10-3 mol)
11. How many particles are in each question from #2?
12. 8.41 x 1022 particles
13. 4.6 x 1022 particles
14. 4.4 x 1021 particles
15. Convert the following into a mass
16. 0.98 mol of chromium III oxide (148.96 g)
17. 1.5 mol of iron III sulfate (599.82 g)
18. 2.9 mol of potassium bromide (345.1 g)
19. Convert the following into moles
20. 1.56 x 1024 particles of water (2.60 mol)
21. 4.87 x 1025 particles of hydrogen peroxide (H2O2) (81.0 mol)
22. 1.65 x 1023 particles of phosphoric acid (0.275 mol)
23. What is the mass of each question from #5?
    * 46.85 g
    * 2755.62 g
    * 26.95 g
24. How many particles in the following
25. 4.5 mol of iron (2.7 x 1023 particles)
26. 1.2 mol of lead (7.2 x 1023 particles)
27. What volume is each gas occupying in the following questions?
28. 0.45 mol of hydrogen gas (at SATP 11.06 L)
29. 1.89 mol of fluorine gas (at SATP 46.87 L)
30. 2.084 mol of chlorine gas (at SATP 51.68 L)
31. What is the mass of the substances in question #8?
32. 0.91 g
33. 71.82 g
34. 147.76 g
35. How many moles of gas are contained in the following questions?
36. 5.65 L of neon gas at STP (0.252 mol)
37. 29.05 L of nitrogen gas at STP (1.297 mol)
38. 6.75 L of oxygen gas at SATP (0.272 mol)
39. What is the mass of all gases in question #10?
40. 5.08 g
41. 36.34 g
42. 8.70 g
43. What is the volume for the following?
44. 2.42 g of helium at STP (13.6 L)
45. 0.65 mol of oxygen at STP (14.56 L)
46. 31.72 g of chlorine gas at SATP (11.10 L)
47. 1.30 g of fluorine gas at SATP (0.848 L)
48. 1.94 mol of neon gas at STP (43.5 L)
49. What are 3 possible ways to calculate the moles of a substance? How do you know which method to use when?
    * Using molar mass if given a mass (mass ÷ molar mass)
    * Using Avogadro’s number of you have the number of particles (mol = particles ÷ Avogadro)
    * Using STP of SATP if given a volume (mol = volume ÷ STP or SATP value)