Chapter 10 Review and Reinforcement Packet Answer Key

All of the numbers in the answers are rounded correctly!

10-1 Review and Reinforcement

1. A mole is defined as the number of atoms of an element equal to the number of atoms in exactly 12.0 g of carbon-12, which is 6.02×10^{23} atoms (or Avogadro's number).
2. The formula mass is the sum of the atomic masses of all of the atoms in a compound.
3. A formula unit is the lowest whole-number ratio of elements in an ionic compound; the representative particle of an ionic compound.
4. Avogadro's number is 6.02×10^{23}, the number of representative particles in a mole.
5. Molar mass is the mass, in grams, of one mole of a substance.
6. carbon-12
7. true
8. formula units
9. true
10. moles
11. 100.09 amu
12. 120.38 amu
13. 40.00 amu
14. 74.55 amu
15. 175.33 amu
16. 63.02 g/mol
17. 17.04 g/mol
18. 136.15 g/mol
19. 110.27 g/mol
20. 162.20 g/mol

10-2 Review and Reinforcement

1. Divide the mass of the substance by its molar mass.
2. Multiply the number of moles by 6.02×10^{23}.
3. Divide by the molar mass and then multiply by 6.02×10^{23}.
4. 42
5. 2.7
6. 0.691
7. 2.47×10^{24}
8. 2.74
9. 6.85
10. 1.63×10^{24}
11. 2.4×10^{23} atoms
12. 1.38×10^{24} atoms
13. 9×10^{24} atoms
    *Note: This problem was kind of tricky. If it had asked for molecules of NO_2, the answer would be 3×10^{24} molecules. But in each molecule of NO_2, there are 3 atoms: 1 atom of N and 2 atoms of O. So, to find the number of atoms in 5 moles you must multiply your answer by 3.
14. 3×10^{22} formula units
15. 5.75×10^{23} molecules
16. 22.3 mol
17. 17 L
18. 0.275 mol, 6.16 L