Honors Chemistry Fall 2015 Review Answers
To get the bonus, you must show work on calculations; also, for don't give my answer back word for word for any of the explanations!

Unit 1

1. a. 5000 m
   b. 150,000,000 ng
2. 5.7×10^{-5} g; 0.0052
3. a. 3.25 mL (3 sig figs); 3.250 mL (4 sig figs)
   b. both 2 sig figs
4. a. 57g
   b. 4.00×10^{3} mg
5. a. 1097.3 cm
   b. 6.71×10^{8} mile/hr; 5.88×10^{12} miles
6. Gas is compressible and takes the shape of container; Solid : not compressible, definite shape and volume; liquid: not compressible, definite volume, indefinite shape
7. 2.86 g/mL, sink in water
8. 36 g
9. Chemical change must have composition change; phase change is not chemical (no composition change); Burning is chemical

Unit 2

12. Atom is mostly made of empty space; most of the mass and all the positive charge is in the nucleus; electrons are outside the nucleus
13. Mass number= upper left corner of element symbol; Atomic number= lower left corner of element symbol
14. a. e,p = 22, n =26 b. e,p = 14, n =14
    c. e,p = 80; n = 120 d. e,p = 55, n = 78
15. Isotopes of the same elements have the same number of protons. They are different by the number of neutrons, which then gives them different atomic masses.
16. Because some isotopes are more abundant than others
17. 10.8009, boron
18. Rutherford just had the electrons in a cloud around the nucleus; all electrons were the same. Bohr put the electrons in specific energy levels in which the electrons orbited the nucleus. The quantum models differentiates the electrons even more by describing their probability of location in sublevels (s, p, d, f)
19. Principle energy level = period number
20. a. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^2$
    b. $1s^2 2s^2 2p^3$
    c. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$
21. Wavelength decreases
22. a. 5×10^{-7} m
    b. $\nu = 6 \times 10^{14}\ s^{-1}$; $E = 3.98 \times 10^{-19}$ J
    c. bluish green

23. 464 nm
24. n7 to n2

Unit 3

25. same # of valence electrons
26. malleable , good conductors, ductile, luster
27. Because they have opposite charge
28. Sr< Mg < Be
29. F
30. Cl<S<Na
31. a. alkali metals
    b. alkaline earth metals
    c. halogens
    d. noble gases
    e. transition metals
32. KBr (potassium bromide); $MgBr_2$ (magnesium bromide); $AlBr_3$ (aluminum bromide); K_2CO_3 (potassium carbonate); $MgCO_3$ (magnesium carbonate); $Al_2(CO_3)_3$ (aluminum carbonate)
33. Ionic has higher melting/boiling points; Ionic compounds can conduct electricity when dissolved in water or molten
34. Ionic; ionic
35. a. dinitrogen pentoxide
    b. aluminum sulfite
    c. sulfur trioxide
    d. N_2O_4
    e. BBr_3
36. these you can google…..
37. CO isn't polar because the C-O bonds are 180° apart and cancel each other out. This makes the molecule symmetric
38. H-F; the difference in electronegativity values is greater
39. Dispersion: nonpolar molecules would only have these: example CH_4
    Dipole-dipole: polar molecules would have these: example PCl_3
    Hydrogen bonding: polar molecules with hydrogen attached to F, O, or N; ex. H_2O