**Nuclear Chemistry Practice Sheet – Solutions**

1) The alpha decay of iridium-174



2) The beta decay of platinum-199



3) Positron emission from sulfur-31



4) Krypton-76 undergoes electron capture



5) Write the symbols for an alpha particle, beta particle, gamma ray, and positron.

**Alpha particle (α) = **

**Beta particle (β) =  (it’s the same as an electron!)**

**Gamma ray (γ) = **

**Positron = **

6) If the half-life for the radioactive decay of zirconium-84 is 26 minutes and I start with a 175 gram sample, how much will be left over after 104 minutes?

**Since 104 minutes is equal to four half-lives, the amount of zirconium left over will be:**



7) Why is it difficult to make a fusion reaction occur?

**A huge amount of energy is required to make fusion reactions occur – typically on the order of 5 x 107 K. Since that kind of energy isn’t just kicking around all over the place, fusion reactions aren’t that common.**