6. An alpha particle has an atomic number of 2, so the atomic number of the daughter must be 2 less than that of the original nucleus, or $84 - 2 = 82$. Consulting the periodic table on the inside back cover of the text we find that the element with the atomic number 82 is lead. An alpha particle has an atomic weight of 4, so the atomic weight of the daughter must be 4 less than that of the original nucleus or $213 - 4 = 209$. Thus the daughter product is $_{82}Pb^{209}$.