Nuclear Equations

1. Each of these elements are undergoing alpha decay. An alpha particle is made of 2 neutrons and 2 protons. Its symbol is either α or He (for helium, because helium also has 2 neutrons and 2 protons).

Fill in the gaps for atomic mass and proton number for each of the elements marked X:

a)
$$^{222}_{88}Ra \rightarrow ^{4}_{2}He + \underline{\quad }X$$

b)
$$^{208}_{92}U \rightarrow ^{4}_{2}He + \underline{}X$$

c)
$$^{208}_{84}Po \rightarrow ^{4}_{2}He + \underline{-X}$$

d)
$$^{185}_{79}Au \rightarrow ^{4}_{2}He + \underline{-X}$$

e)
$$^{185}_{75}Pt \rightarrow ^{4}_{2}He + \underline{-X}$$

2. These elements are going through beta decay. A beta particle is the same as an electron, which has next to no mass and has a charge of -1.

Fill in the gaps for atomic mass and proton number for each of the elements marked X:

a)
$${}_{2}^{6}He \rightarrow {}_{-1}^{0}e + \underline{\qquad}X$$

b)
$$^{24}_{11}Na \rightarrow ^{0}_{-1}e + -X$$

c)
$$^{201}_{70}Au \rightarrow ^{0}_{-1}e + \underline{-}X$$

d)
$$^{42}_{19}K \rightarrow ^{0}_{-1}e + \underline{}X$$

e)
$$^{145}_{55}Cs \rightarrow ^{0}_{-1}e + -X$$