Program 8a – alpha decay problems:

1. $_{90}^{X}Th \rightarrow {}_{2}^{4}\alpha + {}_{Z}^{A}??$
2. $_{Z}^{X}?? \rightarrow {}_{2}^{4}\alpha + {}_{88}^{A}Ra$
3. $_{92}^{X}U \rightarrow {}_{2}^{4}\alpha + {}_{Z}^{A}??$
4. $_{Z}^{X}?? \rightarrow {}_{2}^{4}\alpha + {}_{90}^{A}Th$

Program 8b – beta decay problems:

1. $_{6}^{X}C \rightarrow {}_{-1}^{0}\beta + {}_{Z}^{A}??$
2. $_{Z}^{X}?? \rightarrow {}_{-1}^{0}\beta + {}_{7}^{A}N$
3. $_{43}^{X}Tc \rightarrow {}_{-1}^{0}\beta + {}_{Z}^{A}??$
4. $_{Z}^{X}?? \rightarrow {}_{-1}^{0}\beta + {}_{44}^{A}Ru$

Program 8c – fission problems:

1. $_{95}^{X}Am + {}_{2}^{4}\alpha \rightarrow {}_{Z}^{A}??+ \ 2\ {}_{0}^{1}n$

2. $_{Z}^{X}??+ \ {}_{2}^{4}\alpha \rightarrow \ {}_{97}^{A}Bk + \ 2\ {}_{0}^{1}n$

3. $_{98}^{X}Cf + {}_{5}^{10}B \ \rightarrow {}_{Z}^{Y}??+4\ {}_{0}^{1}n$

4. $_{Z}^{X}??+ \ {}_{5}^{10}B \ \rightarrow \ {}_{103}^{Y}Lr + 4\ {}_{0}^{1}n$

5. $_{99}^{X}Es + \ {}_{2}^{4}\alpha \ \rightarrow {}_{Z}^{Y}?? + {}_{0}^{1}n$

6. $_{Z}^{X}??+ \ {}_{2}^{4}\alpha \ \rightarrow \ {}_{101}^{Y}Md + \ {}_{0}^{1}n$