Nuclear Equations Worksheet

\star Write the nuclear equations that accurately describe the following statements. \star
La-144 becomes Ce-144 when it undergoes a beta decay.
Np-233 is formed when Am-237 undergoes a nuclear decay process.
Sm-146 is produced when an element undergoes an alpha decay.
The beta decay of Dy-165 creates a new element.
The Ne-22 nucleus is formed when an element undergoes a beta decay.
U-235 undergoes an alpha decay to produce Th-231.
U-238 undergoes an alpha decay and produces two gamma rays.
When Pa-229 goes through two alpha decays, Fr-221 is formed.

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Answers

La-144 becomes Ce-144 when it undergoes a beta decay.

$$_{57}La^{144} \xrightarrow{\beta} _{58}Ce^{144}$$

Np-233 is formed when Am-237 undergoes a nuclear decay process.

$$_{95}Am^{237} \xrightarrow{\alpha} _{93}Np^{233}$$

Sm-146 is produced when an element undergoes an alpha decay.

$$_{64}\text{Gd}^{150} \xrightarrow{\quad \alpha \quad } \quad _{62}\text{Sm}^{146}$$

The beta decay of Dy-165 creates a new element.

$$_{64}$$
Dy 165 $\xrightarrow{\beta}$ $_{67}$ Ho 165

The Ne-22 nucleus is formed when an element undergoes a beta decay.

$$_{9}F^{22} \longrightarrow _{10}Ne^{22}$$

U-235 undergoes an alpha decay to produce Th-231.

$$_{92}U^{235} \longrightarrow {}_{90}Th^{231}$$

U-238 undergoes an alpha decay and produces two gamma rays.

$$_{92}U^{235}$$
 $\xrightarrow{\alpha}$ $_{90}Th^{231} + 2V$

When Pa-229 goes through two alpha decays, Fr-221 is formed.

$$_{91}Pa^{229} \xrightarrow{\alpha} _{89}Ac^{225} \xrightarrow{\alpha} _{87}Fr^{221}$$

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