

- 30** Nuclide X decays to stable nuclide Y with a half-life of  $T$  years.

Geologists discovered that nuclide Y found in a particular rock sample all came from nuclide X which was present when the rock was formed.

The rock is thought to be  $3T$  years old.

What is the expected ratio  $\frac{\text{number of atoms of X}}{\text{number of atoms of Y}}$  for this rock?

**A**  $\frac{1}{2}$

**B**  $\frac{1}{3}$

**C**  $\frac{1}{6}$

**D**  $\frac{1}{7}$