

- 39** A material contains a radioactive isotope that disintegrates solely by the emission of  $\alpha$ -particles at a rate of  $100\text{ s}^{-1}$ .

Which statement about this material is correct?

- A** The number of atoms in the material diminishes at a rate of  $100\text{ s}^{-1}$ .
- B** The number of neutrons in the material diminishes at a rate of  $100\text{ s}^{-1}$ .
- C** The number of nucleons in the material diminishes at a rate of  $400\text{ s}^{-1}$ .
- D** The number of protons in the material diminishes at a rate of  $100\text{ s}^{-1}$ .

- 40** A radioactive nucleus emits an  $\alpha$  particle or a  $\beta$  particle, creating a product nucleus.