

Marks
2

- Technetium-99 is used in imaging internal organs in the body, and is often used to assess heart damage. The rate constant for decay of $^{99m}_{43}\text{Tc}$ is 0.116 hour^{-1} . What is the half life of this nuclide?

Answer:

What fraction is left after 30 minutes?

Answer:

2

- Boron-13 is a synthetic (not naturally occurring) isotope of boron. Using the N/Z ratio, predict a possible mode of decay for the isotope boron-13. Give a reason for your choice and write the nuclear equation for this decay.