

- Outline the rules that determine nuclear stability.

Marks
3

The ratio of neutrons to protons (N/Z) is approximately 1 for low atomic numbers ($Z \leq 20$), but it slowly rises to about 1.5 as Z increases.

All elements with $Z > 83$ are unstable.

Atoms with even numbers of N and Z tend to be more stable than those with odd numbers. There are some particularly stable nuclei where the number of neutrons and or protons = 2, 8, 20, 28, 50, 82 and 126.