40 In an experiment to determine the half-life of a radioactive substance, the average value of the background radiation was found to be 8.3 counts per second.

At the start of the experiment with a source of this substance, the average total count rate was found to be 77.3 counts per second. After 280 s this had fallen to 61.6 counts per second.

What is the value this experiment gives for the half-life of the substance?

A   604 s   **B**   752 s   **C**   855 s   **D**   1090 s