8 The element strontium has at least 16 isotopes. One of these isotopes is strontium-89. This isotope has a half-life of 52 days.

For Examiner's Use

(a) State what is meant by *isotopes*.

.....

.....

..... [2]

(b) Calculate the probability per second of decay of a nucleus of strontium-89.

probability = ... s^{-1} [3]

(c) A laboratory prepares a strontium-89 source.
The activity of this source is measured 21 days after preparation of the source and is found to be 7.4×10^6 Bq.

Determine, for the strontium-89 source at the time that it was prepared,

(i) the activity,

activity = ... Bq [2]

(ii) the mass of strontium-89.

mass = ... g [2]