A radioactive substance, which has been collected, decays over time.

The mass of the radioactive substance remaining is modelled by

$$M = 150e^{-0.0054t}$$

where M is the mass, in micrograms, t years after the radioactive substance was collected.

(a) Determine the initial mass of the radioactive substance. 1

(b) Calculate the time taken for the mass of the radioactive substance to decay to 120 micrograms. 4

Answers:

(a) 150 micrograms

(b) 41.3 years