10. A biologist conducted an experiment to investigate the growth of mould on a slice of bread.

The biologist measured the surface area of bread, A cm^2, covered by mould at times, t days, after the start of the experiment.

Initially 9.00 cm^2 of the bread was covered by mould and 6 days later, 56.25 cm^2 of the bread was covered by mould.

In the biologist's model, the rate of increase of the surface area of bread covered by mould, at any time t days, is proportional to the square root of that area.

By forming and solving a differential equation,

(a) show that the biologist's model leads to the equation

$$A = \left(\frac{3}{4}t + 3 \right)^2$$

(6)

The biologist's full set of results are shown in the table below.

t (days)	0	6	12	18	24	30
A (cm^2)	9.00	56.25	143.78	271.19	334.81	337.33

Table 1

Use the last four measurements from Table 1 to

(b) (i) evaluate the biologist's model,

(ii) suggest a possible explanation of the results.

(3)