1. Weed is completely covering the surface of a pond.

   Fish are introduced into the pond in an effort to control the weed.

   The surface area of the pond, $A\,\mathrm{m}^2$, covered by the weed, t days after the fish are introduced is modelled by the equation

   $$A = 105 - 12e^{0\cdot08t} \qquad t \in \mathbb{R}, t \geqslant 0$$

   According to the model,

   (a) state the surface area of the pond covered by the weed at the start of the investigation,

   (1)

   (b) find the time taken in days, to one decimal place, for the surface area of the pond covered by the weed to fall to $40\,\mathrm{m}^2$

   (3)

   Stuart wants to predict the surface area of the pond covered by the weed 30 days after the fish are introduced.

   (c) Explain why he should not use this model.

   (2)