3 The number of members of a social networking site is modelled by $m = 150e^{2t}$, where m is the number of members and t is time in weeks after the launch of the site.

(a) State what this model implies about the relationship between m and the rate of change of m.

[2]

(b) What is the significance of the integer 150 in the model? [1]

(c) Find the week in which the model predicts that the number of members first exceeds 60 000.

[3]

(d) The social networking site only expects to attract 60 000 members.

Suggest how the model could be refined to take account of this. [1]