

MATH 108 – QUIZ 12 – 20 APRIL 2011

Answer all of the following questions in the space provided. Show all work as partial credit may be given. Answers without justification, even if they are correct, will earn no credit.

1. (3 pts. each) Let  $h(t) = \frac{2}{1 + 3e^{2t}}$ .

(a) Find the  $y$ -intercept of  $h(t)$ .

(b) Find  $\lim_{t \rightarrow \infty} h(t)$  and  $\lim_{t \rightarrow -\infty} h(t)$ .

2. (2 pts. each) The temperature of a hot casserole  $t$  minutes after it has been removed from the oven is given by  $T(t) = 180 - 110e^{-.03t}$  degrees Fahrenheit.

(a) What is the temperature of the casserole when it is removed from the oven?

(b) What is the temperature of the casserole 30 minutes after it has been removed from the oven?

(c) In the long run (that is, as  $t \rightarrow \infty$ ), what will be the temperature of the casserole?