

11. The height,  $h$  metres, of a plant,  $t$  years after it was first measured, is modelled by the equation

$$h = 2.3 - 1.7e^{-0.2t} \quad t \in \mathbb{R} \quad t \geq 0$$

Using the model,

- (a) find the height of the plant when it was first measured,

(2)

- (b) show that, exactly 4 years after it was first measured, the plant was growing at approximately 15.3 cm per year.

(3)

According to the model, there is a limit to the height to which this plant can grow.

- (c) Deduce the value of this limit.

(1)