6 The photograph shows heather, *Calluna vulgaris*, a plant that grows on moorland.

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In an investigation into the net primary productivity of heather, all the vegetation on an area of two different moorlands, A and B, was removed by burning. The dry biomass, in g m^{-2}, was then measured each year for a period of 20 years.

(a) Give an equation that shows the relationship between gross primary productivity, net primary productivity and respiration.

(1)

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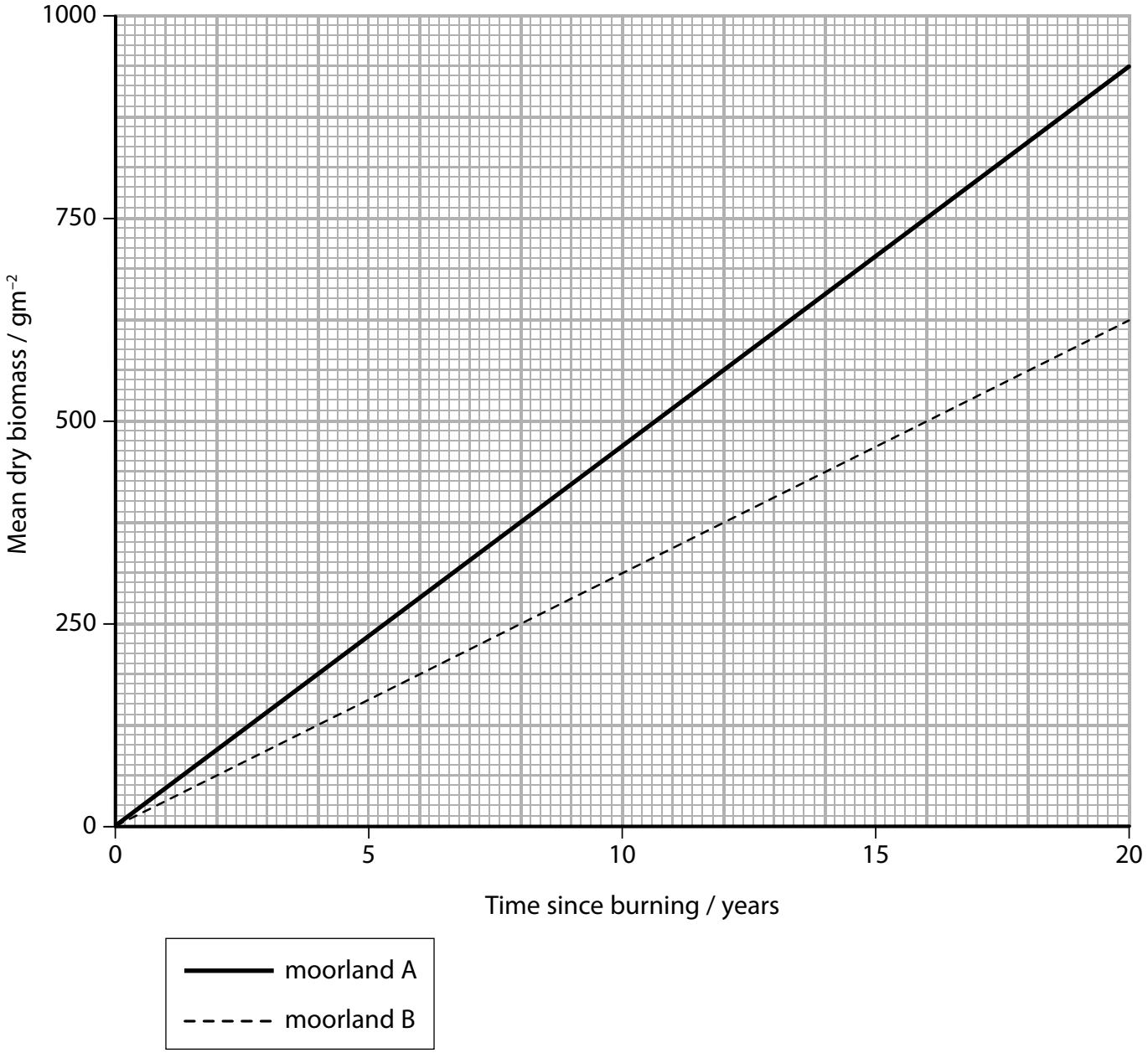
.....

(b) The graph shows the change in the mean dry biomass of the heather plants during the 20 year period.



(i) Describe a method that could be used to obtain the mean dry biomass of the heather plants in year 20.

(2)

.....

.....

.....

.....

(ii) The total solar radiation reaching moorland A was 3 144 000 kJ m^{-2} yr^{-1}.
Each gram of dry heather contains 22.186 kJ.

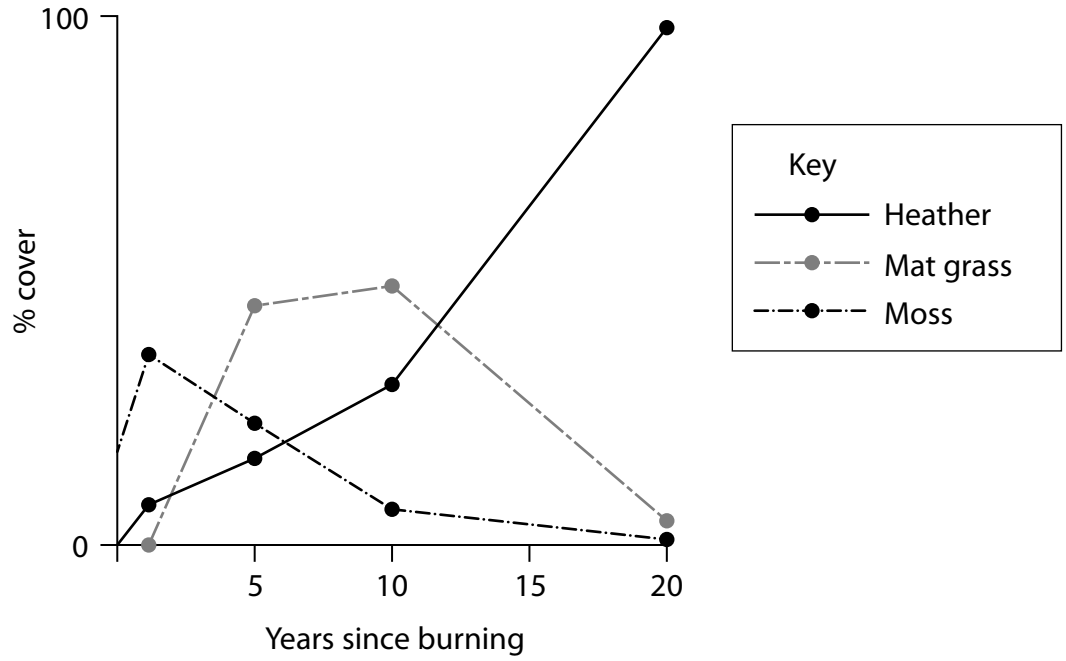
Calculate the percentage efficiency of heather plants from moorland **A** at converting solar radiation into dry biomass.

(2)

Answer.....

(iii) After the burning of the moorland, a process of succession occurred.

The following information shows some of the changes found over the 20 years.



Analyse the data to explain the changes shown.

(3)

(Total for Question 6 = 8 marks)