

6 An on-line science website states:

'To find a dog's equivalent human age in years, multiply the natural logarithm of the dog's age in years by 16 then add 31.'

6 (a) Calculate the equivalent age to the nearest human year of a dog aged 5 years.

[1 mark]

6 (b) A dog's equivalent age in human years is 40 years. Find the dog's actual age to the nearest month.

[3 marks]

6 (c) Explain why the behaviour of the natural logarithm for values close to zero means that the formula given on the website cannot be true for very young dogs.

[2 marks]