

**14 (a)** Use the laws of logarithms to show that  $\log_{10}200 - \log_{10}20$  is equal to 1. **[2]**

The first three terms of a sequence are  $\log_{10}20, \log_{10}200, \log_{10}2000$ .

**(b)** Show that the sequence is arithmetic. **[2]**

**(c)** Find the exact value of the sum of the first 50 terms of this sequence. **[2]**