5. The lifetimes of batteries sold by company X are normally distributed, with mean 150 hours and standard deviation 25 hours.

A box contains 12 batteries from company X.

(a) Find the expected number of these batteries that have a lifetime of more than 160 hours.

(3)

The lifetimes of batteries sold by company Y are normally distributed, with mean 160 hours and 80% of these batteries have a lifetime of less than 180 hours.

(b) Find the standard deviation of the lifetimes of batteries from company Y.

(3)

Both companies sell their batteries for the same price.

(c) State which company you would recommend. Give reasons for your answer.

(2)

(Total 8 marks)