A factory produces small bottles of natural spring water. Two different machines, X and Y, are used to fill empty bottles with the water. A quality control engineer checks the volumes of water in the bottles filled by each of the machines. He chooses a random sample of 60 bottles filled by machine X and a random sample of 75 bottles filled by machine Y. The volumes of water, X and Y respectively, in millilitres, are summarised as follows.

$$\Sigma x = 6345$$
 $\Sigma (x - \overline{x})^2 = 243.8$ $\Sigma y = 7614$ $\Sigma (y - \overline{y})^2 = 384.9$

 \overline{x} and \overline{y} are the sample means of the volume of water in the bottles filled by machines X and Y respectively.

Find a 95% confidence interval for the difference between the mean volume of water in bottles filled by machine *X* and the mean volume of water in bottles filled by machine *Y*. [6]