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.

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

$\overline{x}$ 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]