9 **(a)** The masses, M grams, of bags of flour are modelled by the distribution N(1002, 2.25).

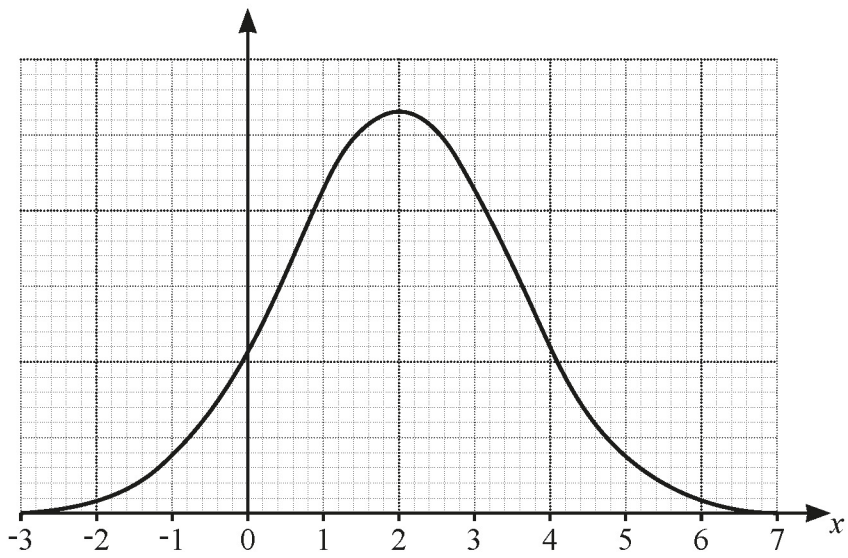Find P($1000 < M < 1005$). **[1]**

(b) The masses, in grams, of bags of sugar are modelled by the distribution $N(\mu, \sigma^2)$.

You are given that 20% of bags have masses greater than 502 g and 30% of bags have masses less than 499 g.

Determine the values of μ and σ. Give your answers correct to **2** decimal places. **[5]**

(c) The diagram shows the probability distribution of a normal variable, X.

(i) Write down estimates of the x-coordinates of the points of inflection on the graph. **[1]**

(ii) Hence write down an estimate of the standard deviation of X, explaining your method. **[1]**