11 As part of a research project, the masses, m grams, of a random sample of 1000 pebbles from a certain beach were recorded. The results are summarised in the table.

Mass (g)	$50 \leqslant m < 150$	$150 \leqslant m < 200$	$200 \leqslant m < 250$	$250 \leqslant m < 350$
Frequency	162	318	355	165

(a) Calculate estimates of the mean and standard deviation of these masses. **[2]**

The masses, x grams, of a random sample of 1000 pebbles on a different beach were also found. It was proposed that the distribution of these masses should be modelled by the random variable $X \sim N(200, 3600)$.

(b) Use the model to find $P(150 < X < 210)$. **[1]**

(c) Use the model to determine x_1 such that $P(160 < X < x_1) = 0.6$, giving your answer correct to **five** significant figures. **[3]**

It was found that the smallest and largest masses of the pebbles in this second sample were 112 g and 288 g respectively.

(d) Use these results to show that the model may not be appropriate. **[1]**

(e) Suggest a different value of a parameter of the model in the light of these results. **[2]**