15 You must show detailed reasoning in this question.

The screenshot in Fig. 15 shows the probability distribution for the continuous random variable X, where $X \sim \mathrm{N}(\mu, \sigma^2)$.

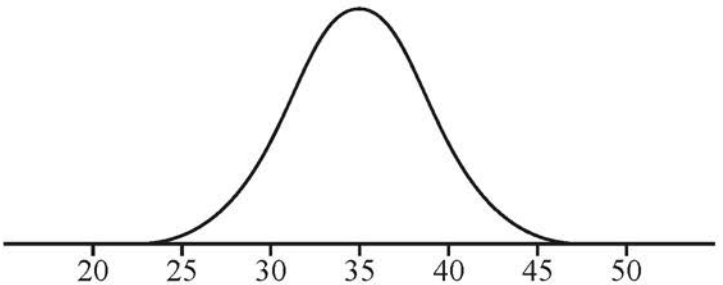

Fig. 15

The distribution is symmetrical about the line $x = 35$ and there is a point of inflection at $x = 31$.

Fifty independent readings of X are made. Show that the probability that at least 45 of these readings are between 30 and 40 is less than 0.05. **[6]**