$E(X) = np = \frac{1}{6}6000 = 1000$
$var(X) = np(1-p) = 6000(\frac{1}{6})(\frac{5}{6}) = 833.33$

c$\sigma = 100$ so:

$$\begin{aligned} c &= \frac{100}{sigma} \\ &= \frac{100}{\sqrt{833.3}} \\ &= 3.464 \end{aligned}$$

Thus: $P\{|X - E(X)| \geq 100\} \leq \frac{1}{3.454^2}$