6. The discrete random variable R has the distribution $R \sim \mathrm{B}(n,p)$

The mean of R is 200

(a) State the variance of R in terms of p

(1)

A normal distribution is used as an approximation for R

Using this approximation, $\mathrm{P}(R < 180) = 0.0307$ to 3 significant figures.

(b) Show that $\sqrt{200 - 200p} = 10.96$ to 4 significant figures.

(5)

(c) Hence find the value of p, giving your answer to 2 significant figures.

(2)

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Question 6 continued

(Total for Question 6 is 8 marks)