3. A company produces packets of sunflower seeds. Each packet contains 40 seeds. The company claims that, on average, only 35% of its sunflower seeds do not germinate.

A packet is selected at random.

(a) Using a 5% level of significance, find an appropriate critical region for a two-tailed test that the proportion of sunflower seeds that do not germinate is 0.35
You should state your hypotheses clearly and state the probability, which should be as close as possible to 2.5%, for each tail of your critical region.

(4)

(b) Write down the actual significance level of this test.

(1)

Past records suggest that 2.8% of the company's sunflower seeds grow to a height of more than 3 metres.
A random sample of 250 of the company's sunflower seeds is taken and 11 of them grow to a height of more than 3 metres.

(c) Using a suitable approximation test, at the 5% level of significance, whether or not there is evidence that the proportion of sunflower seeds that grow to a height of more than 3 metres is now greater than 2.8%
State your hypotheses clearly.

(5)

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Question 3 continued

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Question 3 continued

(Total for Question 3 is 10 marks)