3. A biologist is investigating the weights of rabbits in two different regions, region *A* and region *B*
The biologist collects random samples of 50 rabbits from region *A* and 40 rabbits from region *B* and records the weight, *x* kg, of each rabbit.

The table shows a summary of the biologist's data.

	Sample size	$\sum x$	$\sum x^2$	**Unbiased estimate of the mean**	**Unbiased estimate of the variance**
Region *A*	50	132.5	354.555	2.65	0.07
Region *B*	40	118	350.05	p	q

(a) Calculate the value of p and the value of q

(3)

The biologist believes that the mean weight of rabbits in region *A* is smaller than the mean weight of rabbits in region *B*

(b) Stating your hypotheses clearly, carry out a suitable test to assess the biologist's belief. Use a 5% level of significance and state your critical value.

(7)

(c) Explain how you have used the fact that the sample sizes are large in your answer to part (b)

(2)

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Question 3 continued

(Total for Question 3 is 12 marks)