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A medical student believes that, in adults, there is a **negative correlation** between the amount of nicotine in their blood stream and their energy level.

The student collected data from a random sample of 50 adults.

The correlation coefficient between the amount of nicotine in their blood stream and their energy level was -0.45

Carry out a hypothesis test at the 2.5% significance level to determine if this sample provides evidence to support the student's belief.

For $n = 50$, the critical value for a one-tailed test at the 2.5% level for the population correlation coefficient is 0.2787

[4 marks]