14 The mass of aluminium cans recycled each day in a city may be modelled by a normal distribution with mean 24 500 kg and standard deviation 5 200 kg.

14 (a) State the probability that the mass of aluminium cans recycled on any given day is **not** equal to 24 500 kg.

[1 mark]

14 (b) To reduce costs, the city's council decides to collect aluminium cans for recycling less frequently.

Following the decision, it was found that over a 24-day period a total mass of 641 520 kg of aluminium cans was recycled.

It can be assumed that the distribution of the mass of aluminium cans recycled is still normal with standard deviation 5 200 kg, and that the 24-day period can be regarded as a random sample.

Investigate, at the 5% level of significance, whether the mean daily mass of aluminium cans recycled has **changed**.

[7 marks]

14 (c) A member of the council claims that if a different sample of 24 days had been used the hypothesis test in part **(b)** would have given the same result.

Comment on the validity of this claim.

[2 marks]