

3. A manufacturer makes components for the car industry.

On average 1.5% of the components made are defective.

(a) Using a suitable model, find the probability that in a random sample of 36 components there are

(i) exactly 2 defective components,

(ii) more than 3 defective components.

**(3)**

Once every six months, the manufacturer tests whether the proportion of defective components has changed using hypotheses  $H_0: p = 0.015$  and  $H_1: p \neq 0.015$

A random sample of 260 components is taken and 8 are found to be defective.

(b) Using a 5% level of significance, complete the test.

**(3)**