A-Level Starter Activity

Jonwa Maths

Topic: Normal Approximation to the Binomial Distribution

Chapter Reference: Statistics 2, Chapter 3

8 minutes

1. A shopkeeper knows, from past records, that 15% of customers buy an item from the display next to the till. After a refurbishment of the shop, he takes a random sample of 30 customers and finds that only 1 customer has bought an item from the display next to the till.

Stating your hypotheses clearly, and using a 5% level of significance, test whether or not there has been a change in the proportion of customers buying an item from the display next to the till. **(6)**

Solutions

1.

$H_0 : p = 0.15$	**M1**
$H_1 : p \neq 0.15$	**M1**
$X \sim B(30, 0.15)$	**M1**
$P(X \leq 1) = 0.0480$	**M1**
$0.0480 > 0.025$, Not a significance result therefore do not reject H_0.	**M1**
There is no evidence of a change in the proportion of customers buying an item from the display.	**M1**