

**(Goodness-of-fit test)** A student was given a die but he had no idea whether or not it was a fair die. He threw the die 480 times and each outcome was recorded. The results are given in the following table.

$x_i$	1	2	3	4	5	6
$O_i$	80	105	95	64	79	57

Test, at the 5% level of significance, whether or not this die is fair. You must state the null and alternative hypotheses in words or in formulae, the test statistic and its distribution under  $H_0$ , the decision rule and your conclusion.