Null hypothesis: Die is biased
Alternate hypothesis: Die is unbiased.

$H_0: p_1 = p_2 = p_3 = p_4 = p_5 = p_6$
$H_a$: atleast one $p_i$ is not equal.

Expected Frequency: $276/6 = 46$

Chi-square is calculated as: $\chi^2 = \sum \frac{(O-E)^2}{E}$

| | Observed Freq.(O) | Expected Freq(E) | $(O-E)^2/E$ |
|---|---|---|---|
| 1 | 40 | 46 | 0.7826 |
| 2 | 39 | 46 | 4.2609 |
| 3 | 29 | 46 | 6.2826 |
| 4 | 59 | 46 | 3.6939 |
| 5 | 57 | 46 | 2.6304 |
| 6 | 59 | 46 | 3.6739 |
| | | | $\Sigma$ 21.3043 |

From Table: $\chi^2 = 21.20$
Level of significance: $\alpha = 5\% = 0.05$
degree of freedom: $n-1 = (6-1) = 5$
Critical value:
critical value = 11
$\chi^2_c = \chi^2_{0.05/5} = 11$

Conclusion:
Since test static $\chi^2 = 21.30$ is greater than $\chi^2_c = 11$ we reject null hypothesis so, Die is unbiased.