7B Critical Regions

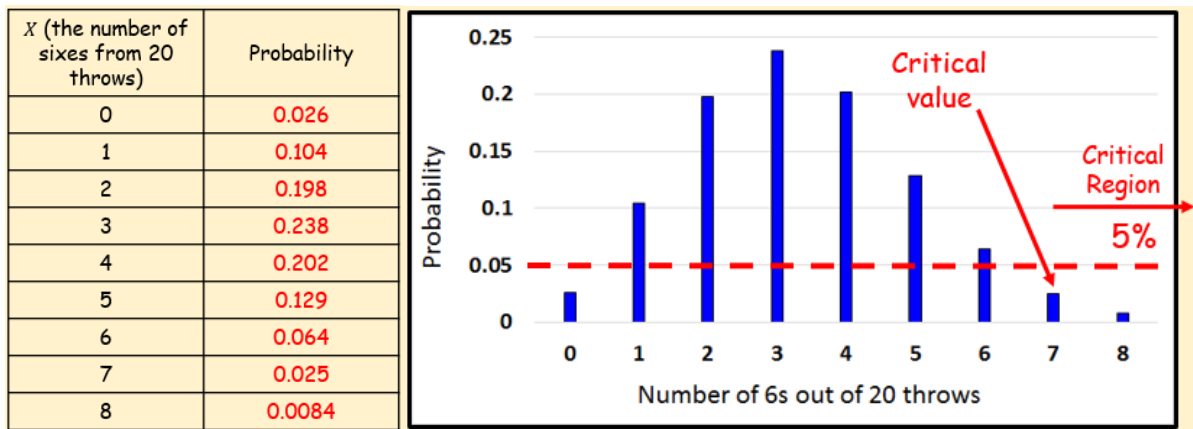| X (the number of sixes from 20 throws)	Probability
0	0.026
1	0.104
2	0.198
3	0.238
4	0.202
5	0.129
6	0.064
7	0.025
8	0.0084

1. A single observation is taken from a Binomial distribution $B(6, p)$. The observation is then used to test $H_0: p = 0.35$ against $H_1: p > 0.35$.

a) Using a 5% significance level, find the critical region for this test

b) State the actual significance level of this test

2. A random variable X has binomial distribution $B(40, p)$. A single observation in used to test $H_0: p = 0.25$ against $H_1: p \neq 0.25$.

a) Using the 2% level of significance, find the critical region of this test. The probability in each 'tail' should be as close to possible as 0.01

b) State the actual significance level of the test