Hypothesis testing 7A

1 a A hypothesis is a statement made about the value of a population parameter. A hypothesis test uses a sample or an experiment to determine whether or not to reject the hypothesis.

b The null hypothesis (H_0) is what we assume to be correct and the alternative hypothesis (H_1) tells us about the parameter if our assumption is shown to be wrong.

c The test statistic is used to test the hypothesis. It could be the result of the experiment or statistics from a sample.

2 a one-tailed test

b two-tailed test

c one-tailed test

3 a The test statistic is the number of sixes rolled in the 60 trials.

b $H_0 : p = \frac{1}{6}$

c $H_1 : p > \frac{1}{6}$

4 a Shell is describing what her experiment wants to test rather than the test statistic. The test statistic is the number of times she gets a head in 100 tosses.

b $H_0 : p = \frac{1}{2}$

c $H_1 : p \neq \frac{1}{2}$

5 a A suitable test statistic is the number of faulty articles found in a sample of 100.

b $H_0 : p = 0.1$ $H_1 : p < 0.1$

c If the probability of that number being 8 or less is less than 5%, the null hypothesis is rejected.

6 a A suitable test statistic is the number of supporters found in a sample of 20.

b H_0: $p = 0.55$ H_1: $p < 0.55$

c If the probability of that number being 7 is 2% or more, the null hypothesis is accepted.