**Determining whether the proportion of babies with low birth weight in Africa and the Americas differ.**

Let p1 be the proportion of babies with low birth weight (below 2.5 kg) in Africa and p2 be the proportion in the Americas.

H0: p1=p2

H1: p1=/=p2

**Testing at 5% significance level.**

> x=c(140,80) #observed data

> y=c(900,700) #observed data

> prop.test(x,y)

2-sample test for equality

of proportions with

continuity correction

data: x out of y

X-squared = 5.3123, df = 1,

p-value = 0.02118

alternative hypothesis: two.sided

95 percent confidence interval:

0.006590818 0.075948864

sample estimates:

prop 1 prop 2

0.1555556 0.1142857

The p-value is of a lower magnitude than our significant value of 0.05, thus we reject H0. IE there is sufficient evidence to suggest that the proportion of low birth rates in both continents are different.

**Conducting same test using CI.**

Using the code from part B, we see that the 95% CI for the difference in rate is (0.006590818, 0.075948864). Even though the lower limit of the CI is close to zero, since the CI does not contain zero we conclude that the proportion of low birth weight in the two different countries are different.

Type 1 error is the probability that we reject H0 given that H0 is true IE probability of getting values greater than or equal to four given that p=0.3

> 1-pgeom(3,0.3)

0.2401

We get a false negative 24.01 percent of the time