Hypotheses

Investigate the claim that the mean height of the sunflower plant is 6.3ft

☐ $H_0: \mu = 6.3$ft	☐ $H_0: \mu < 6.3$ft	☐ $H_1: \mu = 6.3$ft	☐ $H_1: \mu < 6.3$ft
☐ $H_0: \mu \neq 6.3$ft	☐ $H_0: \mu > 6.3$ft	☐ $H_1: \mu \neq 6.3$ft	☐ $H_1: \mu > 6.3$ft

Investigate the claim that the mean time for the year 6 racers has increased from 12.6s

☐ $H_0: \mu = 12.6$s	☐ $H_0: \mu < 12.6$s	☐ $H_1: \mu = 12.6$s	☐ $H_1: \mu < 12.6$s
☐ $H_0: \mu \neq 12.6$s	☐ $H_0: \mu > 12.6$s	☐ $H_1: \mu \neq 12.6$s	☐ $H_1: \mu > 12.6$s

During a particular week, 13 babies were born in a maternity unit. Part of the standard procedure is to measure the length of the baby. Given below is a list of the lengths, in centimetres, of the babies born in this particular week

49 50 45 51 47 49 48 54 53 55 45 50 48

Assuming that this sample came from an underlying normal population with standard deviaiotn 2.3cm, test at the 5% significance level, the hypothesis that the population mean length is 50cm. What are the hypotheses for this test?

☐ $H_0: \mu = 50$cm	☐ $H_0: \mu < 50$cm	☐ $H_1: \mu = 50$cm	☐ $H_1: \mu < 50$cm
☐ $H_0: \mu \neq 50$cm	☐ $H_0: \mu > 50$cm	☐ $H_1: \mu \neq 50$cm	☐ $H_1: \mu > 50$cm

The weights of steel ingots are known to be normally distributed with a standard deviaiton of 0.9kg. A random sample of 12 steel ingots is taken from a production line. The weights, in kilograms, of these ingots are given below.

24.8 30.8 28.1 24.8 27.4 22.1 24.7 27.3 27.5 27.8 23.9 23.2

Investigate the claim that the mean weight exceeds 25.0kg using a 10% significance level
What are the hypotheses for this test?

☐ $H_0: \mu = 25$kg	☐ $H_0: \mu < 25$kg	☐ $H_1: \mu = 25$kg	☐ $H_1: \mu < 25$kg
☐ $H_0: \mu \neq 25$kg	☐ $H_0: \mu > 25$kg	☐ $H_1: \mu \neq 25$kg	☐ $H_1: \mu > 25$kg

A random sample of 14 cows was selected from a large dairy herd at Brookfield farm. Their milk yields are normally distributed. In one week the yields, In kilograms, for each cow are recorded. The results are given below

169.6 142.0 103.3 111.6 123.4 143.5 155.1 101.7 170.7 113.2 130.9 146.1 169.3 155.5

Investigate the claim that the mean weekly milk yield for the herd is greater than 120kg, assuming that the population variance is still 6.41kg, using a 5% significance level
What are the hypotheses for this test?

☐ $H_0: \mu = 120$kg	☐ $H_0: \mu < 120$kg	☐ $H_1: \mu = 120$kg	☐ $H_1: \mu < 120$kg
☐ $H_0: \mu \neq 120$kg	☐ $H_0: \mu > 120$kg	☐ $H_1: \mu \neq 120$kg	☐ $H_1: \mu > 120$kg

A random sample of 15 workers from a vacuum flask assembly line was selected from a large number of such workers. Ivor Stopwatch, a work-study engineer, asked each of these workers to assemble a one litre vacuum flask at their normal working speed. The times taken, in seconds, to complete these tasks are given below

109.2 146.2 127.9 92.0 108.5 91.1 109.8 114.9 115.3 99.0 112.8 130.7 141.7 122.6 119.9

Assuming that this sample came from an underlying normal population, with a starnadrd deviaion of 15.6 investigate the claim that the population mean assembly time is less than 2 minutes using the 5% significance level. What are the hypotheses for this test?

☐ $H_0: \mu = 2$mins	☐ $H_0: \mu < 2$mins	☐ $H_1: \mu = 2$mins	☐ $H_1: \mu < 2$mins
☐ $H_0: \mu \neq 2$mins	☐ $H_0: \mu > 2$mins	☐ $H_1: \mu \neq 2$mins	☐ $H_1: \mu > 2$mins

☐ $H_1: \mu > 2$mins

☒ $H_1: \mu < 2$mins