*Question no 1*

*Scores:  90,95,89,71,73,96,87,95 107,89,96,80,97,95 102,97,93 101,82,83,74,91,83,98,95*

*111,99 120,93,84*

1. Sample mean - 92.2
2. Sample estimate is not exactly likely equal to population parameters. Because we are sampling. Sampling parameters varies from sample to sample.
3. Standard error for sample estimate - 1.976529
4. It tells us sampling distribution of the sample mean. How spread the sampling distribution of sample mean.
5. Calculate a 95% confidence interval for the population mean

88.24694 < µ < 96.15306

1. The confidence interval can be described as the most possible values of the population mean. A 95% confidence interval is a range of values that can be 95% certainly contains true mean of population.

*Question no 2*

*Male:  220.1, 218.6, 229.6, 228.8,222.0,224.1, 226.5*

*Female:  223.4,221.5,230.2,224.3,223.8,230.8*

Descriptive statistics

Mean (Male) - 224.2429

Standard deviation (Male) - 4.254745

Mean (Female) - 225.6667

Standard deviation (Female) - 3.866609

H0  - males and females have the same mean cholesterol concentrations (µm - µf = 0).

H1  - males and females  mean cholesterol concentrations are not same (µm - µf ≠ 0).

data: Male and Female

t = -0.63184, df = 10.942, p-value = 0.5405

alternative hypothesis: true difference in means is not equal to 0

95 percent confidence interval:

-6.386747 3.539128

sample estimates:

mean of x mean of y

224.2429 225.6667

We cannot reject the null hypothesis since p-value > 0.05

*Question no 3*

*H0 : the treatment has no effect*

*H1 : the treatment has an effect*

1. False. P-value only tells us whether we can reject null hypothesis or not. It doesn’t imply the size of null hypothesis.
2. True.
3. False. P-v
4. False.
5. True

*Question no 4*

*person A:  248, 236, 269, 254, 249, 251, 260, 245, 239, 255*

*person B:  380, 391, 377, 392, 398, 374*

H0  - person B has volume of 1.5 times red blood cells of person A’ s volume of red blood cells .

H1  - person B doesn’t have volume of 1.5 times red blood cells of person A’ s volume of red blood cells .

data: personA \* 1.5 and personB

t = -1.5592, df = 13.749, p-value = 0.1417

alternative hypothesis: true difference in means is not equal to 0

95 percent confidence interval:

-22.431928 3.565261

sample estimates:

mean of x mean of y

375.9000 385.3333

We could reject null hypothesis since the p-value > 0.05

*Question no 5*

Standard deviation – Standard deviation is descriptive statistic. It tells us how the data distribution around the mean. When we calculate the standard deviation of a sample, we are using it as an estimate of the variability of the population from which the sample was drawn. If we got more and more data in other words sample size increases standard deviation closes to the population standard deviation.

Standard Error f mean - This is the standard deviation of the sample mean, and describe its accuracy as an estimate of the population mean. When we got more data in other words sample size increases, the estimator is based on more information and becomes more accurate, so its standard error decreases.