

STATISTICS VIDEO PLAYLIST QUESTIONS

Watch the statistics video playlist at the following URL and you can then answer the questions on the sheet. <http://www.youtube.com/playlist?list=PL2obyWWQgAEshV5PxJiTptEkzpA1Fh7l6>

THE LANGUAGE OF STATISTICS (PART 1 OF 2)

This video focuses on parts of chapter 7A and 7B. A lot of it is a basic reflection on what was done as part of Order and Chaos in 2012. Video description: Some basic statistical words to improve your vocabulary.

1. What constitutes a non-bias survey?
2. List five categorical forms of data and five forms of Quantative data (3 discrete and 2 continuous)
3. Calculate the mean, median and mode for the following data set. Which measure would be most appropriate?

1, 2, 3, 4, 4, 4, 4, 5, 7, 8, 9, 10
4. Identify the population and sample of the following survey
An independent market survey polls a group of 8-year-old children what their favourite cereal is. It was found that 38% responded cornflakes.

THE LANGUAGE OF STATISTICS (PART 2 OF 2)

This video focuses on parts of chapter 7A and 7B. A lot of it is a basic reflection on what was done as part of Order and Chaos in 2012. Video description: Some basic statistical words to improve your vocabulary.

1. Write an example of an inferential statistic

2. Write an example of a descriptive statistic

3. What is standard deviation a measure of?

4. Identify the outliers in the following data set: 1, 3, 5, 6, 6, 6, 7, 8, 109, 189
What statistical measures would be affected by these outliers?

BASICS OF NORMAL DISTRIBUTIONS (PART 1 OF 3)

This video focuses on parts of chapter 7C. This looks at how the normal distribution can be divided into standard deviations. Video description: This video focuses on how to use information around standard deviations to calculate values associated with contextual problems.

1. What percentage of the distribution lies between μ and $\mu + \sigma$?

2. What percentage of the distribution lies between $\mu - 3\sigma$ and $\mu + \sigma$?

3. What is the probability of a value of the distribution lies between $\mu - \sigma$ and $\mu + \sigma$?

4. What is the probability of a value of the distribution lies between $\mu - 3\sigma$ and $\mu - 2\sigma$?

BASICS OF NORMAL DISTRIBUTIONS (PART 2 OF 3)

This video focuses on parts of chapter 7C. This looks at how the normal distribution can be divided into standard deviations. Video description: A continuation of the last video looking at how the empirical rule can help solve contextual questions.

1. The time a bus arrives is normally distributed with a mean of 8.40am and a standard deviation of 2 minutes. Calculate the probability of the bus arriving before 8.36am.
2. The time a bus arrives is normally distributed with a mean of 8.40am and a standard deviation of 2 minutes. Calculate the percentage of days the bus arrives between 8.38am and 8.42am.
3. The time a bus arrives is normally distributed with a mean of 8.40am and a standard deviation of 2 minutes. If the service operates for 349 days a year, how many days will the service be very late (more than 6 minutes late)?

BASICS OF NORMAL DISTRIBUTIONS (PART 3 OF 3)

This video focuses on parts of chapter 7C. This looks at how the normal distribution can be divided into standard deviations. Video description: A continuation of the last video looking at how the empirical rule can help solve contextual questions.

1. The mass of bananas are normally distributed. 16% are more than 200 grams and 2.5% are less than 140 grams. What is the mean and standard deviation? Draw a scaled distribution below with all details.
2. The number of apps installed on mobile phones owned by teenagers are normally distributed. 16% of users have less than 40 apps and 0.15% have more than 115 apps. What is the mean and standard deviation? Draw a scaled distribution below with all details.
3. A survey of how many television sets a family own was conducted and the results found that this was normally distributed. If 84% of people own less than 5 television sets and 16% of people own 3 television sets, calculate the mean and standard deviation. Explain why the survey is discrete Quantative and what the problem with some values calculated impose on the data.

CALCULATING MEAN AND STANDARD DEVIATION FROM FREQUENCY TABLES

This video focuses on parts of chapter 7B. This looks at how the normal distribution can be divided into standard deviations. It also briefly touches upon ideas raised in Chapter 7C and 7D too. Video description: This video looks at how to calculate the mean and standard deviation from a frequency table. It also goes on to begin a tiny bit of z scores, which will be covered in the next topic.

1. From the following probability table, derive the mean and standard deviation

x_i	0	1	2	3	4
$P(X_i)$	0.34	0.32	0.21	0.12	0.01

$$\bar{x} = \sum x_i + p_i \text{ and } \sigma = \sqrt{\sum p_i (x_i - u)^2}$$

2. From the following probability table, derive the mean and standard deviation

x_i	0	1	2	3	4	5	6
$P(X_i)$	0.16	0.48	0.20	0.08	0.05	0.02	0.01

$$\bar{x} = \sum x_i + p_i \text{ and } \sigma = \sqrt{\sum p_i (x_i - u)^2}$$

3. A value is two standard deviations to the right of the mean. What is its z score?