

Goals



Unit goals

- Understand the concepts and techniques in statistics
- Solve problems in statistics
- Interpret and evaluate mathematical and statistical information

By the end of this week, you should be able to:

- Use the normal distribution to investigate probabilities
- Calculate r for bivariate data
- Interpret r^2

Theoretical Components

Read through Sections 6.1, 6.2, 6.4, 6.5 (covers Normal distribution) in Fitzpatrick. Read the examples.

Read through Sections 8.1, 8.2, 8.5, 8.6 (covers Correlation) in Fitzpatrick. Read the examples.

Note: We will use CAS to calculate the Correlation coefficient, r (not manually using Pearson or Spearman).

The *PDF* file, Chap 2 (on HawkerMaths), covers Correlation. In particular, make sure you understand Coefficient of Determination (and answer questions on it).

Make sure you are confident about the following key concepts:

- The normal curve and probability
- Dependent and independent variables
- Parallel boxplots
- Two-way frequency tables
- Scatterplots and relationships
- Pearson's correlation coefficient
- Coefficient of determination

Pearsons correlation coefficient – r

<http://www.youtube.com/watch?v=AE9E2mXsQvo>

Use the BoxPlot Tool on HawkerMaths (Week 2) to construct parallel box plots. Copy and paste this to your own workspace before using.

Greek Alphabet

Population mean, μ (mu)

Population standard deviation, δ (sigma)

Practical Components

Do the following questions. Organise your solution neatly in your exercise book

Fitzpatrick:

Exercise 6a: Q 2 – Q9, Q11, Q13, Q16

Exercise 6c: Q1, Q2, Q3, Q4, Q5, Q6, Q8, Q9

Exercise 6d: any

Exercise 8a: pick a couple of questions and use CAS to 'draw' the scatter plots.

Exercise 8b: any, use CAS to calculate r .

The *PDF* file Chap 2 (on HawkerMaths) has many good questions on this week's work. Look at all the exercises to see the types of questions that can be asked. It would be a good idea to try some.

Make sure, however, that you do the following questions.

Exercise 2A all

Exercise 2C Q3 Use CAS to analyse the data

Exercise 2D Q2, Q3

Exercise 2F all

Exercise 2G all

Investigation

On HawkerMaths. Worked Example 4 (P63) in Chap 2 will help.

Quiz

None this week.