All Souls St Gabriels School

Year 10 Advanced Mathematics Semester 2 Assignment

TASK IDENTIFIER	STUDENT NAME	TEACHER NAME
2.1	HOLLIE GRANT	Miss Marley
TOPICS	**GENRE**	**SITTING DATES:**
Data	Report	Issued: 8/8/14 Draft Due: 18/8/14 Final Due: 25/8/14

TASK CONDITIONS

TIME ALLOWED: 3 weeks (Two weeks in Class)

INSTRUCTIONS TO STUDENTS:

1. You must adhere to All Souls St Gabriel's Assessment Policy.
2. Any submitted work is to be typed
3. Show full working and/or reasoning/justification at all times.
4. Present your work neatly and use correct grammar, punctuation and spelling.
5. Use of a calculator is permitted.
6. Grades will be awarded according to the marking criteria grids
7. Your name must be on the front of this paper and on all separate pages of work submitted.

CCE's

Recalling/remembering, Graphing, Calculating with or without calculators, Substituting in formulae, Extrapolating, Sketching/drawing, Structuring/organising a mathematical argument, Setting out/presenting/arranging/displaying, Applying strategies to trial and test ideas and procedures, Applying a progression of steps to achieve the required answer

RESULTS

U&F		PS&R	

TEACHER COMMENTS

Hollie Grant

PART A

Table 1: Volume of World Exports of Raw Cotton, by Country

Mean	=AVERAGE(C3:C9)	=AVERAGE(D3:D9)	=AVERAGE(E3:E9)	=AVERAGE(F3:F9)	=AVERAGE(G3:G9)	=AVERAGE(H3:H9)	=AVERAGE(I3:I9)	=AVERAGE(J3:J9)
Median	=MEDIAN(C3:C9)	=MEDIAN(D3:D9)	=MEDIAN(E3:E9)	=MEDIAN(F3:F9)	=MEDIAN(G3:G9)	=MEDIAN(H3:H9)	=MEDIAN(I3:I9)	=MEDIAN(J3:J9)
Max	=MAX(C3:C9)	=MAX(D3:D9)	=MAX(E3:E9)	=MAX(F3:F9)	=MAX(G3:G9)	=MAX(H3:H9)	=MAX(I3:I9)	=MAX(J3:J9)
Min	=MIN(C3:C9)	=MIN(D3:D9)	=MIN(E3:E9)	=MIN(F3:F9)	=MIN(G3:G9)	=MIN(H3:H9)	=MIN(I3:I9)	=MIN(J3:J9)
Range	=C13-C14	=D13-D14	=E13-E14	=F13-F14	=G13-G14	=H13-H14	=I13-I14	=J13-J14
Q1	=QUARTILE(C3:C9,1)	=QUARTILE(D3:D9,1)	=QUARTILE(E3:E9,1)	=QUARTILE(F3:F9,1)	=QUARTILE(G3:G9,1)	=QUARTILE(H3:H9,1)	=QUARTILE(I3:I9,1)	=QUARTILE(J3:J9,1)
Q3	=QUARTILE(C3:C9,3)	=QUARTILE(D3:D9,3)	=QUARTILE(E3:E9,3)	=QUARTILE(F3:F9,3)	=QUARTILE(G3:G9,3)	=QUARTILE(H3:H9,3)	=QUARTILE(I3:I9,3)	=QUARTILE(J3:J9,3)
IQR	=C17-C16	=D17-D16	=E17-E16	=F17-F16	=G17-G16	=H17-H16	=I17-I16	=J17-J16

Table 2: Australian Cotton Harvested, Lint Yield and Production

Mean	=AVERAGE(C4:C26)	=AVERAGE(D4:D26)	=AVERAGE(E4:E26)	=AVERAGE(F4:F26)	=AVERAGE(G4:G26)	=AVERAGE(H4:H26)	=AVERAGE(I4:I26)	=AVERAGE(J4:J26)	=AVERAGE(K4:K26)
Median	=MEDIAN(C4:C26)	=MEDIAN(D4:D26)	=MEDIAN(E4:E26)	=MEDIAN(F4:F26)	=MEDIAN(G4:G26)	=MEDIAN(H4:H26)	=MEDIAN(I4:I26)	=MEDIAN(J4:J26)	=MEDIAN(K4:K26)
Max	=MAX(C4:C26)	=MAX(D4:D26)	=MAX(E4:E26)	=MAX(F4:F26)	=MAX(G4:G26)	=MAX(H4:H26)	=MAX(I4:I26)	=MAX(J4:J26)	=MAX(K4:K26)
Min	=MIN(C4:C26)	=MIN(D4:D26)	=MIN(E4:E26)	=MIN(F4:F26)	=MIN(G4:G26)	=MIN(H4:H26)	=MIN(I4:I26)	=MIN(J4:J26)	=MIN(K4:K26)
Range	=C30-C31	=D30-D31	=E30-E31	=F30-F31	=G30-G31	=H30-H31	=I30-I31	=J30-J31	=K30-K31
Q1	=QUARTILE(C4:C26,1)	=QUARTILE(D4:D26,1)	=QUARTILE(E4:E26,1)	=QUARTILE(F4:F26,1)	=QUARTILE(G4:G26,1)	=QUARTILE(H4:H26,1)	=QUARTILE(I4:I26,1)	=QUARTILE(J4:J26,1)	=QUARTILE(K4:K26,1)
Q3	=QUARTILE(C4:C26,3)	=QUARTILE(D4:D26,3)	=QUARTILE(E4:E26,3)	=QUARTILE(F4:F26,3)	=QUARTILE(G4:G26,3)	=QUARTILE(H4:H26,3)	=QUARTILE(I4:I26,3)	=QUARTILE(J4:J26,3)	=QUARTILE(K4:K26,3)
IQR	=C34-C33	=D34-D33	=E34-E33	=F34-F33	=G34-G33	=H34-H33	=I34-I33	=J34-J33	=K34-K33

PART B

1. Introduction

The data obtained was from the Department of Agriculture, Fisheries and Forestry. During 1788, the first fleet bought cottonseed to Australia. At the end of the 19th Century Australia's cotton production peaks then declined due to world prices dropping. In 1926, Queensland cotton marketing board was established. Australia was well on its way to a good cotton industry, and then suddenly in 1954 the cotton production became nearly non-existent. In 1990, Australia's got its first transgenic cotton variety for farming. During the start on the 21st Century the world cotton prices dropped at the lowest they had in 30 years. Round-up was then introduced to Australia in 2002 to help protect more crops. In 2002, the worst drought in 100 years caused the cotton crop size to reduce in size to almost 60%. Cotton imports roughly $12.6 billion to the Australian economy each year on average.

2. Aim

The aim of this report is to prove that Australia's production of raw cotton is increasing and decreasing through imports and exports and the overall production.

3. *Hypothesis*

In the past decade despite Australia's production of raw cotton increasing, the amount imported has also increased, while exports have decreased.

4. Method

- Collected data from Cotton Australia.
- Completed the five number summary, range, inter-quartile ranges and mean for each set of data.
- Display a formula for both tables using CTRL~.
- Write the introduction using background information, history and data.
- Make your hypothesis.
- Next is the Results section using excel spreadsheets, graphical displays, statistical analysis and written observations. Make sure to indicate the purpose of each display and brief descriptions.
- The Next step is the analysis, this must include a range of discussions such as; relating to background information, discussing trends from results, possible sources, and how the investigation could be extended and improved.
- The conclusion has to sum up your hypothesis and final results.
- The bibliography has to list references.
- Part C is a poster to sum up your findings.

5. Results

	Domestic lint production kt	Imports Volume kt	Exports Volume kt
Minimum	132.8	0.0	259.7
Lower Quartile	334.1764	0.045735	399.1285
Median	491.9	0.1	472.8
Upper Quartile	855.5555	0.233723	613.8171
Maximum	1197.6	0.4	1305.8
Range	586.7	0.1	573.2
IQR	521.3791	0.187989	214.6887
Mean	586.7	0.1	573.2

Formulae:

Minimum	=MIN(B7:B16)	=MIN(C7:C16)	=MIN(D7:D16)
Lower Quartile	=QUARTILE(B7:B16,1)	=QUARTILE(C7:C16,1)	=QUARTILE(D7:D16,1)
Median	=MEDIAN(B7:B16)	=MEDIAN(C7:C16)	=MEDIAN(D7:D16)
Upper Quartile	=QUARTILE(B7:B16,3)	=QUARTILE(C7:C16,3)	=QUARTILE(D7:D16,3)
Maximum	=QUARTILE(B7:B16,4)	=QUARTILE(C7:C16,4)	=QUARTILE(D7:D16,4)
Range	=AVERAGE(B7:B16)	=AVERAGE(C7:C16)	=AVERAGE(D7:D16)
IQR	=B21-B19	=C21-C19	=D21-D19
Mean	=AVERAGE(B7:B16)	=AVERAGE(C7:C16)	=AVERAGE(D7:D16)

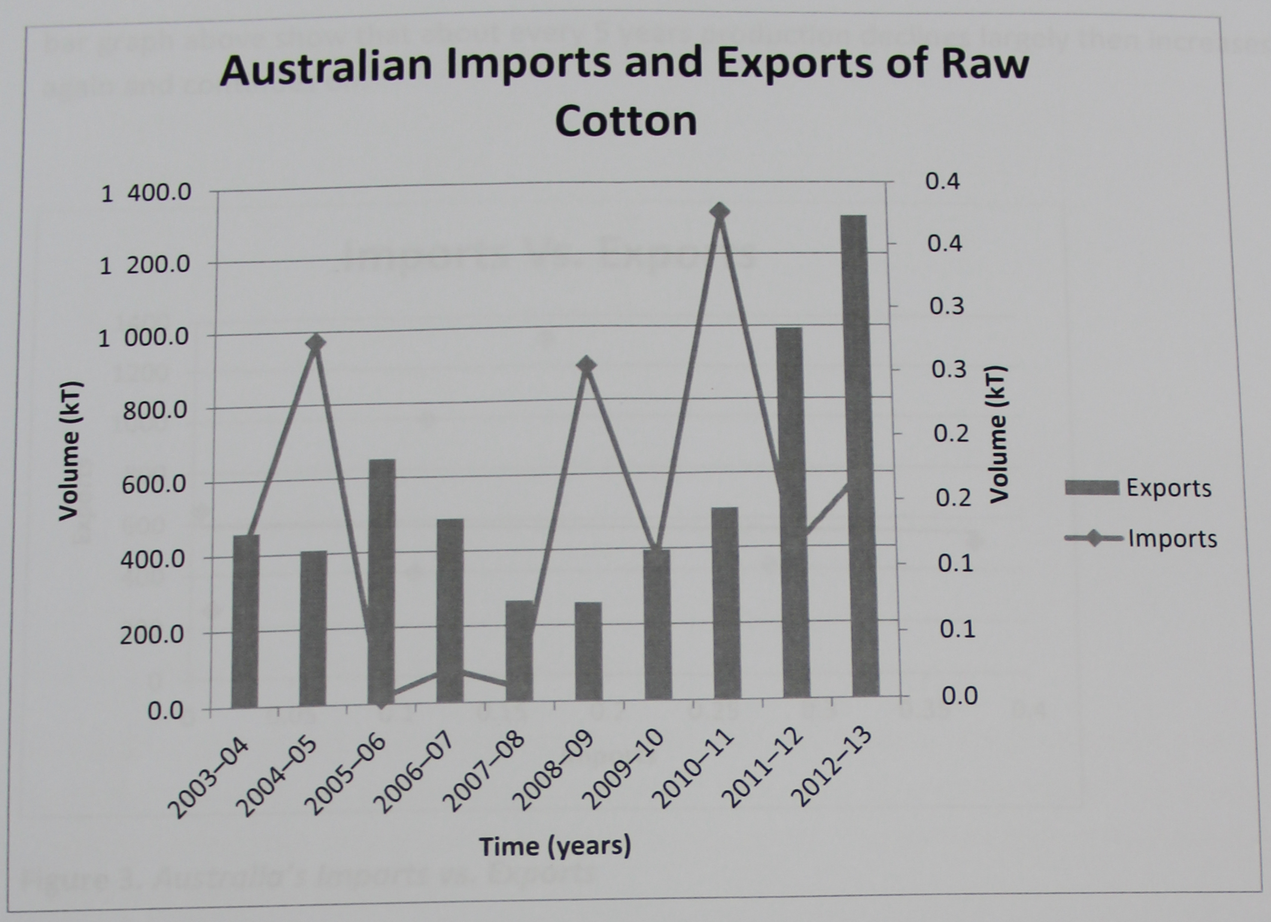


Figure 1. ***Australian Imports and Exports of Raw Cotton***

This graph shows the imports and exports in Australia's raw cotton industry throughout the last decade. The graph shows that imports peaked early and dropped dramatically whereas the exports stayed high average until 2007 then pecked highly from 2011. The graph shows that when exports increase, exports also increase. Also when exports decrease, imports decrease at the same time.

Figure 2. ***Australia's Production***

This graph shows that Australia's overall volume production of cotton dropped in 2007 and then peaked high in 2011 again. Australia's overall production has been relatively high in the last decade. A trend in the

bar graph above show that about every 5 years production declines largely then increases significantly again and continues on.

Figure 3. ***Australia's Imports vs. Exports***

The trend line on this scatter plot shows no correlation. This was able to be seen before the trend line was on the graph. However exports have been so continuous whereas imports have increased and decreased a lot more frequently.

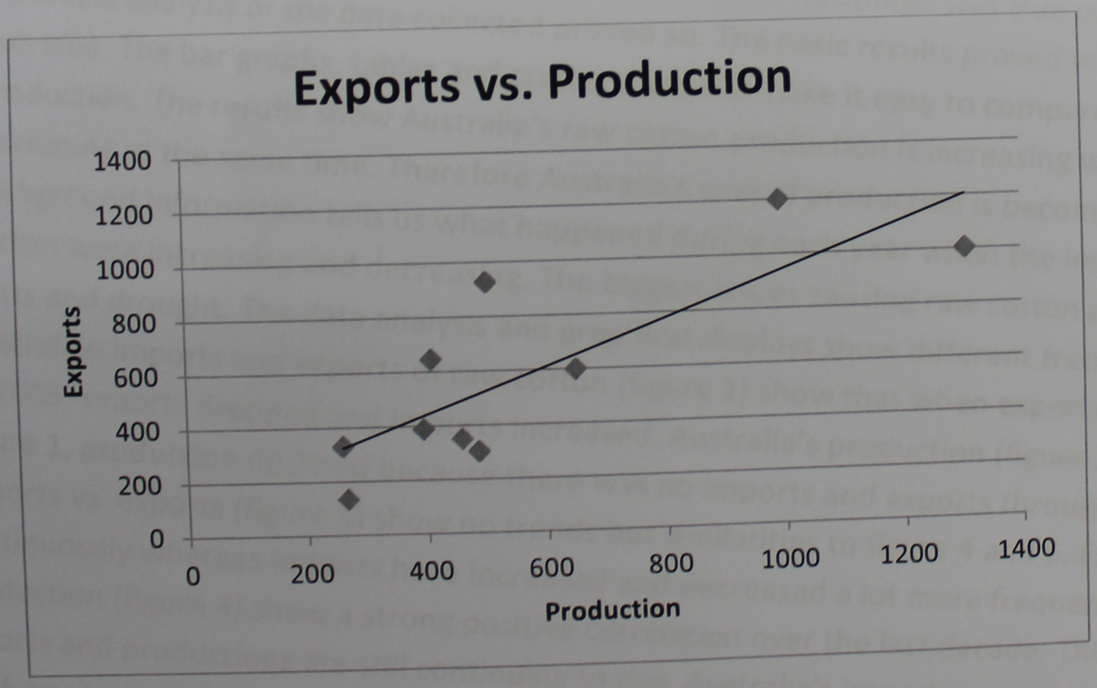


Figure 4. ***Australia's Exports vs. Production***

The trend line on this scatter plot shows a strong positive correlation with exports and production in Australia over the last decade. The scatter plot shows that the numbers have increased throughout the last decade. Also that exports and production in Australia are continuing to rise still.

Figure 5. ***Australia's Imports vs. Production***

This scatter plot shows a weak positive correlation with imports and production over the last decade. Australia's Imports and production have slightly increased but not by much. This scatter plot shows a continuous rinse but only slightly. Australia's exports vs. production (figure 4) show the same type of correlation continuing to rinse.

6. Analysis

The aim of this investigation was to prove whether my hypothesis was true or false. In doing so the statistical analysis of the data collected proved so. The basic results proved why or why not the hypothesis was true. The bar graphs, tables and scatter plots will make it easy to compare imports, exports and production. The results show Australia's raw cotton production is increasing while exports and imports are increasing at the same time. Therefore Australia's overall production is becoming a better economy. The background information tells us what happened during each year when the imports and exports of raw cotton were increasing and decreasing. The biggest issues causing raw cotton production to decline was pests and drought. The data analysis and graphical displays show different trends and similarities above. Australian imports and exports of raw cotton (figure 1) show that when exports increased so did imports. In 2005, exports dropped and imports increased. Australia's production (figure 2) shows similar trends as figure 1, production declined because there was no imports and exports throughout Australia. Australia's imports vs. exports (figure 3) show no trends but similarities to figure 4 and 5. Exports have rose more continuously whereas imports have increased and decreased a lot more frequently. Australia's exports vs. production (figure 4) show a strong positive correlation over the last decade. This scatter plot shows that exports and productions are still continuing to rise. Australia's imports vs. production (figure 5) show a weak positive correlation similar to figure 4. The investigation could be further extended by finding out the problems during the years the raw cotton industry dropped and the benefits such as rainfall for the year production increased. The investigation could be improved by comparing a lot more cotton data collected over the last decade from different websites. An improvement also would be further detail and more complex tables to compare more things and describe the results found in more detail.

7. Conclusion

It can be concluded that in the past decade despite Australia's production of raw cotton is increasing, the amount imported has also increased, while exports have decreased. This was determined by the bar graphs, scatter plots and tables used to prove the hypothesis. The hypothesis has been proved to be true.

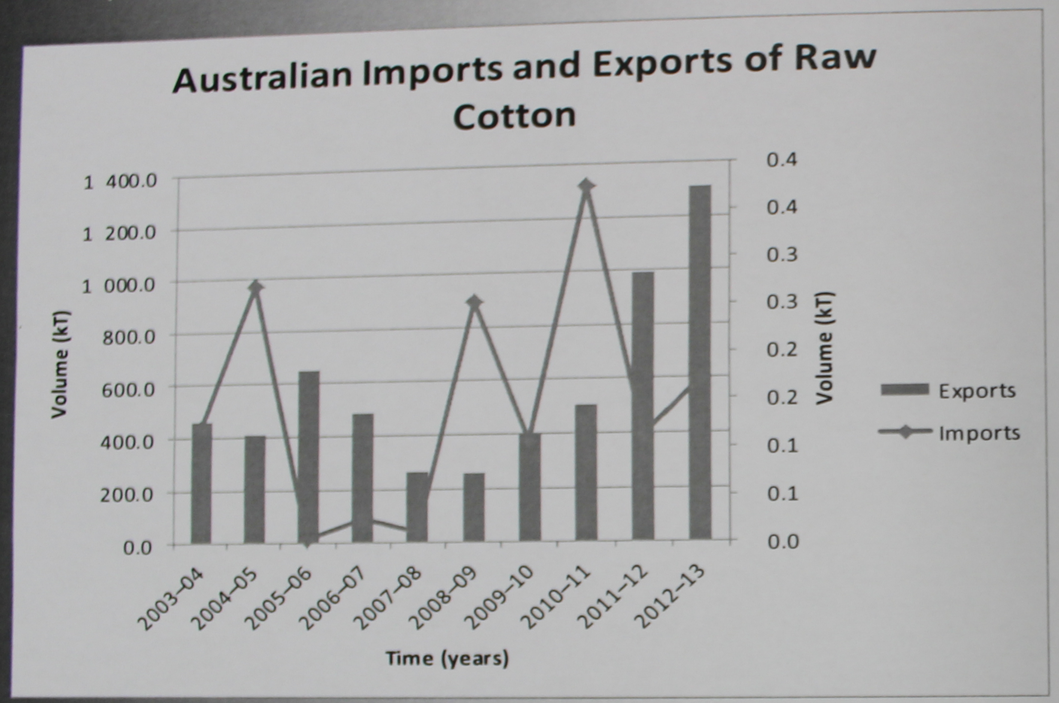
8. Bibliography

http://cottonaustralia.com.au/about/our-history

http://www.cottoncrc.org.au/communities/Cotton_Info/History_of_Australian_Cotton

http://www.qcotton.com.au/history-of-queensland-cotton.html

Australia's raw cotton production



Australian Imports and Exports of Raw cotton

Australia's Production

In the past decade despite Australia's production of raw cotton increasing, the amount imported has also increased, while exports have decreased.