**Mathematical Essentials**

**Unit 3 Statistical Investigation 1**

**Part B Total Mark /23**

**Part B: Which, if any, is the better predictor for height – arm span or the length of a person’s right foot?**

A completed statistical investigation should include:

* an introduction that outlines the question to be answered and any further questions that could be explored
* selection and application of suitable mathematical and graphical techniques you have studied to analyse the provided data
* interpretation of your results, relating your answer to the original problem
* communication of your results and conclusions in a concise, systematic manner.

Your investigation report should include the following: **(23 marks**)

1. Introduction – two or three sentences providing an overview of your investigation (3 marks)

2. Numerical and graphical analysis

* choose various statistical measures you have studied to analyse the data (4 marks)
* consider the most appropriate graphs which represent the data provided (5 marks)

3. Interpretation of the results of this analysis in relation to the original question (7 marks)

* describe any trend and pattern in your data (two to three sentences)
* state how your data relates to the original problem (two to three sentences)
* use your knowledge and understanding gained in this unit to explain your results in one paragraph

4. Conclusion (4 marks)

* summarise your findings and conclusions in one paragraph.

**DATA**

A sample of data from the 2014 *CensusAtSchool* survey is provided below. The data includes the height, arm span and length of right foot for a random sample of 30 students.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Height | Arm span | Right foot length | Height | Arm span | Right foot length | Height | Arm span | Right foot length |
| 170 | 71 | 23 | 158 | 150 | 30 | 162 | 130 | 25 |
| 155 | 150 | 21 | 169 | 174 | 28 | 147 | 27 | 24 |
| 169 | 173 | 26 | 55 | 55 | 23 | 176 | 176 | 26 |
| 177 | 176 | 23 | 165 | 160 | 36 | 148 | 149 | 23 |
| 153 | 149 | 26 | 147 | 142 | 21 | 156 | 155 | 24 |
| 150 | 166 | 25 | 175 | 176 | 25 | 172 | 178 | 25 |
| 159 | 156 | 26 | 166 | 157 | 26 | 150 | 142 | 24 |
| 170 | 162 | 26 | 150 | 136 | 21 | 158 | 80 | 25 |
| 169 | 154 | 26 | 176 | 171 | 24 | 145 | 147 | 21 |
| 162 | 152 | 26 | 163 | 164 | 23 | 167 | 169 | 21 |

**ACKNOWLEDGEMENTS**

First paragraph under ‘Part A: Data collection’ adapted from: Australian Bureau of Statistics. (2014). *CensusAtSchool*. Retrieved March, 2015 from [www.abs.gov.au/censusatschool](http://www.abs.gov.au/censusatschool)

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Data in Task 3, Feedback on Part A (Tasks 1 & 2), and Part B from *CensusAtSchool*, Australian Bureau of Statistics.

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