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| --- | --- | --- | --- |
| Name:  Teacher : | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | Date:\_\_\_\_\_\_\_\_\_ |
| Logo, company name  Description automatically generated | **Year 12 Essentials – Statistical Investigation 2 2022**  **Graphs, Census and Surveys - Mark Scheme**  **Weighting 7% Due Date: \_\_\_\_\_\_\_\_\_\_\_\_** | **Mark \_\_\_\_\_\_\_\_\_** | |

*Scenario: Jack runs a café at Stockland Baldivis Shopping Centre from 6:30am till 3:30pm 6 days a week (closed Sunday). He sells hot drinks and bakery items.*

**Task 1:** He makes a cappuccino at 10am. It then cools down by the same amount every minute.

At 10:03am the temperature is 71. At 10:05am the temperature is 65

By plotting these two points on a graph:

* find the temperature by which the cappuccino is by each minute
* find the initial temperature of the cappuccino.
* Use an equation find the cappuccino’s temperature at 10:20 am
* State a limitation with the assumptions of this scenario.

**Task 2:** To ensure Jack has a plentiful supply of baked items in his food cabinet Jack decides to conduct a survey following the statistical investigation process below:

|  |  |
| --- | --- |
| Description / Working | Marks /25 |
| **Clarify the problem and pose question**   * Some Introduction * Rewrites the 2 tasks required to be answered   **Design & implement a plan to collect appropriate data**   * Correct axis on graph (time= horizontal, temperature = vertical) * Identify the target population * Includes a suggestion about taking a sample and reasons why * Chooses sampling method * Details discussed on specifics of sampling method | 1  2  1  1  2  1  2 |
| / 10 |
| **Analyse information/data using graphical and/or numerical techniques**   * Accurately finds the temperature change/min of cappuccino * Accurately finds the initial temperature of the cappuccino * Uses an equation to find cappuccino’s temperature * Designs an appropriate survey question form * Includes extra survey details Jack would need to consider * Includes any biases to avoid | 2  2  2  2  1  1 |
|  | / 10 |
| **Interprets the results and relates to original question**  States a limitation to the linear modelling of the cappuccino’s temperature  Provides a summary of how this survey will assist Jack and his business | 1  1 |
|  | / 2 |
| **Communicate findings in a systematic and concise manner**   * Conclusion * Report set out logically * Reference section included | 1  1  1  /3 |