Rates of Cooling Investigation - Marking Sheet

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Submitted on: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Late, minus \_\_\_\_\_\_ %

Grade: Score: \_\_\_\_\_\_ /90 Late: \_\_\_\_\_\_ / 90

Section 1

1. Intuitive response

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Required | Temperature above room temp. after X minutes | | | | Room Temp (stated) | 5 degrees above room temp (reasonable) | Total score |
| 2.5 | 13 | 35 | 60 |
| Response | /1 | /1 | /1 | /1 | /1 | /1 | **/6** |

1. Graph of A against t

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Required | Graph | | | Describe graph / features | Discuss connect or not | Total score |
| Labelled axes | Title | Plot |
| Given | /1 | /1 | /2 | /2 | /1 | **/7** |

1. Estimate response

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Required | Temperature above room temp. after X minutes | | | | Room Temp (stated) | Compare to intuition | Total score |
| 2.5 | 13 | 35 | 60 |
| Response | /1 | /1 | /1 | /1 |  | /1 | **/5** |

1. Fitting an appropriate model

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Required | Algebraic formula | Discuss reasons referencing features and behaviour | Chosen model most appropriate | Total score |
|
| Given | /2 | /3 | /1 | **/6** |

1. Algebraic response

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Required | Temperature above room temp. after X minutes | | | | Room Temp (stated) | 5 degrees above room temp | Total score |
| 2.5 | 13 | 35 | 60 |
| Response | /1 | /1 | /1 | /1 |  | /1 | **/5** |

1. Similarities and Differences

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Required | Similarities and Differences between three methods | Most and least accurate with reasons | Compare intuition and algebraic to 5 degrees above room temp | Total score |
|
| Given | /4 | /2 | /3 | **/9** |

Section 2

1. Factors affecting cooling

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Required | Discussion of factors affecting cooling | Choose one | Description of cooling over time | Total score |
|
| Given | /2 | /1 | /3 | **/6** |

1. Experiment

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Required | Variation 1 (valid) | Table (these results or similar) | | | | Room Temp (stated) | 5 degrees above room temp | Total score |
| 2.5 | 13 | 35 | 60 |
| Algebraic response | /1 | /1 | /1 | /1 | /1 |  | /1 | **/6** |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Required | Variation 2 (valid) | Table (these results or similar) | | | | Room Temp (stated) | 5 degrees above room temp | Total score |
| 2.5 | 13 | 35 | 60 |
| Algebraic response | /1 | /1 | /1 | /1 | /1 |  | /1 | **/6** |

1. Analysis

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Required | Graph 1 | | | | Algebraic Formula | Total score |
| Labelled axes | Title | Plot | Curve |
| Given | /1 | /1 | /2 | /2 | /2 | **/8** |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Required | Graph 2 | | | | Algebraic Formula | Total score |
| Labelled axes | Title | Plot | Curve |
| Given | /1 | /1 | /2 | /2 | /2 | **/8** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Required | Similarities and Differences between three models | Summary of important discoveries | Discussion of assumptions | Reasonableness of models | Total score |
|
| Given | /4 | /2 | /2 | /2 | **/10** |

Report Requirements

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Required | Cover page | Presentation | Well structured report | Bibliography | Total score |
|
| Given | /1 | /4 | /4 |  | **/9** |