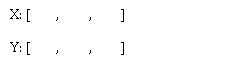
**Curve Straightening and Acceleration**

To determine the acceleration on Mars the Curiosity rover uses an ultrasonic motion sensor to record the time and position of rock as it falls. The position and time data is gathered for the first 10 s.

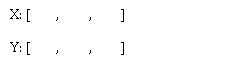
|  |  |
| --- | --- |
| Time (s) | Position (m) |
| 0 | 725 |
| 1 | 723 |
| 2 | 716 |
| 3 | 698 |
| 4 | 668 |
| 5 | 615 |
| 6 | 545 |
| 7 | 463 |
| 8 | 333 |
| 9 | 180 |

1. Sketch this information on the axis below.



1. What is the proportional relationship that gives you a linear graph?
2. Use a second table of values that will help you create a linear graph of time and position.

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1. Sketch the linear graph.
2. What is the equation of the line of best fit?
3. Use your line of best fit to determine the acceleration due to gravity on Mars.