1. The mass of a radioactive substance is measured at 2-day intervals till 8 days. Unfortunately, the reading could not be taken at 6 days due to equipment malfunction. The following table shows the other readings:

|  |  |
| --- | --- |
| Time (d) | Mass (g) |
| 0 | 1.000 |
| 2 | 0.7937 |
| 4 | 0.6300 |
| 8 | 0.3968 |

(a) Estimate the mass at 6 days using (i) Newton’s divided difference, (ii) Lagrange polynomials, (iii) Cubic spline and (iv) second-order polynomial regression.