**Social Security Trust Fund**

The U.S. government has a trust fund in which money is saved to pay social security benefits to people when they reach retirement age. In 2012 the Social Security Administration reported how much money is expected to be in the fund over the next 20 years. Their estimates are shown in this table. (Source: 2012 Annual Report of Social Security Board of Trustees, p. 204)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Calendar Year** | **Years Since 2012** | **Amount in fund (in trillion $)** | **First Differences**  **(∆ *y*)** | **Second Differences ∆(∆*y*)** |
| 2012 | 0 | 2.78 | --- | --- |
| 2014 | 2 | 2.71 | 2.71–2.78 = –0.07 | --- |
| 2016 | 4 | 2.68 |  |  |
| 2018 | 6 | 2.64 |  |  |
| 2020 | 8 | 2.54 |  |  |
| 2022 | 10 | 2.31 |  |  |
| 2024 | 12 | 2.03 |  |  |
| 2026 | 14 | 1.69 |  |  |
| 2028 | 16 | 1.27 |  |  |
| 2030 | 18 | 0.74 |  |  |

1. What is happening to the amount in the trust fund over time? Is it increasing or decreasing?
2. Make a graph with years since 2012 on the horizontal axis and the amount in the trust fund on the vertical axis. Scale the axes appropriately.



1. From your graph do these data appear to fit a linear function? Explain.
2. Draw a curve passing through the data points.
3. From your graph do these data appear to fit a quadratic function?
4. Fill in the column for first differences. What pattern do you notice?
5. Fill in the column for second differences. If a quadratic function were a perfect fit, these numbers should all be the same. Is a quadratic function a perfect fit for these data?
6. What changes in the U.S. population could explain why the social security trust fund is decreasing?
7. Discuss with your class why this is an important issue and what could be done to fix Social Security.