**Problem 5: Show that the six differences of distinct terms of {1, 2, 4} are congruent modulo 7 to the integers from 1 to 6.**

The six differences are calculated as follows where the terms on the top row subtract the terms on the left column. The differences are displayed as follows

|  |  |  |  |
| --- | --- | --- | --- |
|  | **1** | **2** | **4** |
| **1** | 0 | 1 | 3 |
| **2** | -1 | 0 | 2 |
| **4** | -3 | -2 | 0 |

Then you add 7 to the values that are negative to show that the differences were computed in the opposite direction.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **1** | **2** | **4** |
| **1** | 0 | *1* | *3* |
| **2** | *6* | 0 | *2* |
| **4** | *4* | *5* | 0 |

The numbers ital