**A Closer Look at World Population Data**

In the activity, *Is It a Good Deal?*, we explored non linear data that was created through repeated multiplication. Since the daily salary doubled from one day to the next, the *multiplier* was 2. In the activity, *Is Population Trend Linear?,* we explored world population data that was also non linear. This data also has a multiplier, but its multiplier is more difficult to identify. The multiplier in the world population data is approximately 1.0174. Let’s verify this by completing the steps below.

* Clear the home screen of your calculator.
* Type in 4.453, the first population value, and then press enter.
* Press the multiplication key followed by the multiplier 1.0174. When you press enter, you will see “ANS\*1.0174” to tell us that we have just multiplied our previous answer of 4.453 by 1.0174.
* Round your answer to the nearest million. (0.0001 billion). It should agree with the answer in the fourth column.
* Now press enter again and you should get 4.609.
* Continue pressing enter and record the values in the fourth column in the table.

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Years since**  **1980** | **Actual Population**  **(in billions)** | **Calculated Population**  **Using the Multiplier**  **(in billions)** |
| 1980 | 0 | 4.453 | 4.453  × 1.0174 |
| 1981 | 1 | 4.529 | 4.453 (1.0174) = 4.530  × 1.0174 |
| 1982 | 2 | 4.609 | 4.609 |
| 1983 | 3 | 4.690 |  |
| 1984 | 4 | 4.771 |  |
| 1985 | 5 | 4.852 |  |
| 1986 | 6 | 4.936 |  |
| 1987 | 7 | 5.022 |  |
| 1988 | 8 | 5.109 |  |
| 1989 | 9 | 5.196 |  |

Are the calculated population values exactly the same as the actual population values? Explain why you think they are or are not.