Worksheet #1

Eclipse Calculations – Looking at the NASA Data

1. How many eclipses we get year by year. Look at the 2011-2020 data sheets.

2014 2015 2016 2017 2018 2019 2020

2013

Number of Lunar Eclipses

Number of Solar eclipses

2011

2012

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What is the most common number of eclipses in a year?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Total number of eclipses

The number of eclipses each year is at least 4 times but can sometimes be 5, 6, or 7 (maximum). This means that the line of nodes stays in the direction of the sun for a window of time (less than 2 months), or “eclipse season.” From the solar data sheet what are the **two** shortest times between 2 solar eclipses? and what can you say, from this data, is the longest “eclipse season”? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. **The number of days in between Solar Eclipses (refer to the Solar eclipse data sheet)**
2. We predicted that there should be eclipses every 6 months, what would this be in **days**, given there are 365.25 days in a year? \_\_\_\_\_\_\_.
3. The actually number of days between solar eclipses using NASA data.
4. Find the days from Oct. 23, 2014 eclipse to March 20, 2015: \_\_\_\_\_\_\_\_\_\_\_.
5. Find the days from March 20, 2015 eclipse to Sept. 13, 2015: \_\_\_\_\_\_\_\_\_\_\_.
6. Find the days from Sept. 13, 2015 eclipse to March 9, 2016: \_\_\_\_\_\_\_\_\_\_\_.
7. Find the days from March 9, 2016 eclipse to Sept. 1, 2016: \_\_\_\_\_\_\_\_\_\_\_.
8. Find the days from Sept. 1, 2016 eclipse to Feb. 26, 2017: \_\_\_\_\_\_\_\_\_\_\_.
9. Find the days from Feb. 26, 2017 eclipse to Aug. 21, 2017: \_\_\_\_\_\_\_\_\_\_\_.
10. Find the average actual number of days in between eclipses (1-6), use an average \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
11. Find the difference between the actual (iii) and your predicted (i) number of days\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
12. From these numbers, can you determine whether eclipses occur earlier or later than 6 months? and predicting out one year, what would the difference in days be? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.