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| **Image 1**  shows the dates of the last 8 transits. | To the nearest year, how often do transits of Venus occur?  What kinds of numerical patterns can you find among the transit years?  When will the next transits occur between 2012 and 2600?  adapted from NASA workbook “Transit of Venus Math” http://spacemath.gsfc.nasa.gov |
| **Image 2**  shows the orbit times and the radius of the orbits. | **Each planet has a nearly circular orbit.**  What is the circumference of Earth’s orbit?  What is the circumference of Venus’ orbit?  What is Earth’s orbit time in seconds?  What is Venus’ orbit time in seconds?  What is Earth’s orbit speed in km/s?  What is Venus’ orbit speed in km/s?  adapted from NASA workbook “Transit of Venus Math” http://spacemath.gsfc.nasa.gov |
| **Image 3**  shows different positions of Venus during its transit. | **Venus moves through the sky at 9.21x10-4 degrees per minute. The sun is 0.54 degrees across.**  How long (in minutes) will the transit take, if Venus were to appear to move across the Sun’s equator?  How long in minutes is the transit shown in the image from 1st to 4th contact?  Calculate the width of the Sun at the point this transit occurred.  adapted from NASA workbook “Transit of Venus Math” http://spacemath.gsfc.nasa.gov |
| **Image 4**  shows the geometry for an observer watching the transit of Venus. | **The diameter of Venus is known to be 12,600 km.**  **At the time of the transit of Venus, its angular diameter is measured as 0.016 degrees.**  Using trigonometry, what is the distance from Earth to Venus in kilometres at the time of the transit?  adapted from NASA workbook “Transit of Venus Math” http://spacemath.gsfc.nasa.gov |