

The Biblical Day & New Moon:

*Understanding Astronomical Twilight
and Conjunction*

OBJECTIVE:

1. FOUNDATION SCRIPTURES:

- **1 Corinthians 14:32-33** *“32 And the spirits of the prophets are subject to the prophets. 33 For God is not the author of confusion, but of peace, as in all churches of the saints.”*
- **Genesis 1:14** *“And God said, Let there be lights in the firmament of the heaven to divide the day from the night; and let them be for signs, and for seasons, and for days, and years:”*
- **Romans 1:20-21** *“20 For the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made, even his eternal power and Godhead; so that they are without excuse: 21 Because that, when they knew God, they glorified him not as God, neither were thankful; but became vain in their imaginations, and their foolish heart was darkened.”*
- **SIGNS= USED FOR PLOTTING COORDINATES AND PROJECTING FUTURE CELESTIAL EVENTS. SEASONS= ARE DETERMINED BY THE SUN’S LOCATION IN RELATION TO EARTH. DAYS= ARE DETERMINED ALSO BY THE LOCATION OF THE SUN IN RELATION TO YOUR PHYSICAL LOCATION ON EARTH. YEARS= GOD’S USES THE MOON. BABYLON USES THE SUN**

OBJECTIVE:

- 2. The Biblical day will be explained using scripture to show that it correlates with astronomical twilight. New Moon will be discussed. Problems with the sliver/observation method and why conjunction method is the best way to keep the Biblical Feasts and New Moons. The New Moon or First Day of the month always comes the next day after conjunction Jerusalem time at even. Conjunction is easily calculated using a formula. The ancients knew how to do this. Anybody can do it. Once you figure out conjunction time at your location you just add or subtract how many hours your time zone is from Jerusalem to Jerusalem time. Which no time zone goes beyond 12 hours of Jerusalem's time zone. The immediate time after conjunction is the waxing crescent when the moon is visible again. Just because it not visible to some ones naked eye does not mean it is not visible.**

BIBLICAL DAY:

2 Peter 3:8 *“But, beloved, be not ignorant of this one thing, that one day is with the Lord as a thousand years, and a thousand years as one day.”* (**GOD’S TIMETABLE AND THE ONE HE CREATED FOR MAN ARE DIFFERENT**)

1. Genesis 1:1-5 *“1 In the beginning God created the heaven and the earth. 2 And the earth was without form, and void; and darkness was upon the face of the deep. And the Spirit of God moved upon the face of the waters. 3 And God said, Let there be light: and there was light. 4 And God saw the light, that it was good: and God divided the light from the darkness. 5 And God called the light Day, and the darkness he called Night. And the evening and the morning were the first day.”*

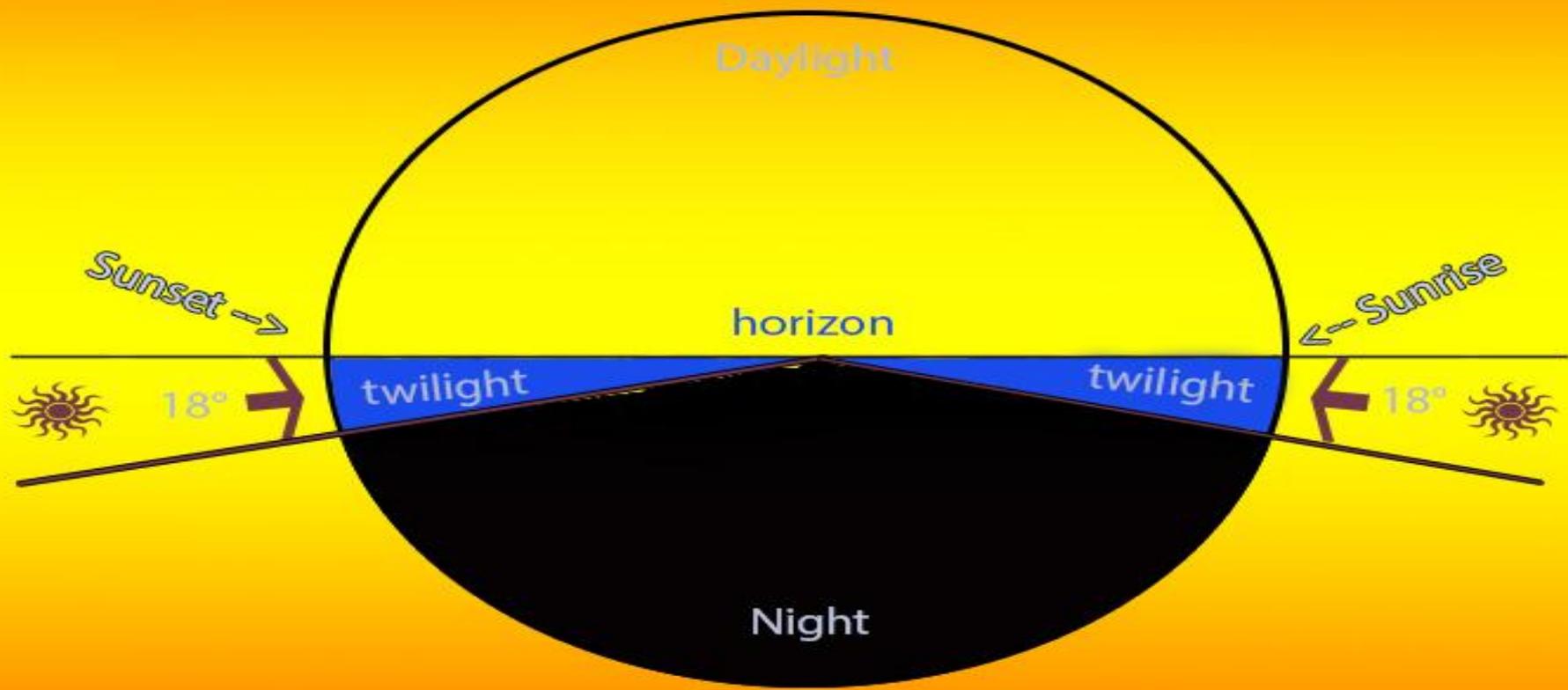
- **NOTES:** *We have our first full day before the sun was created. No sun means no one knows how long this day was. No one knows what type of light this was. The word used in Hebrew is different than sunlight. Light= day and Darkness= night. Evening= start of day and Morning end= end of day. The Hebrew word for evening here is “Ereb” H6153. Its Biblical usage is sunset, evening, and night. Since no sun was created yet Evening is referring to “night” which is darkness. **THE DAY STARTS WHEN IT IS COMPLETELY DARK (NOT SUNSET).** The Hebrew word here for “Boqer” H1242. Its Biblical usage is morning and break of day.*

BIBLICAL DAY CONTINUED:

- **NOTES:** *Since there was no sun yet morning started with the first appearance of light (NOT SUNRISE). ALSO NOTICE YOU HAVE EVENING=NIGHT=DARKNESS AND MORNING=DAY=FIRST APPEARANCE OF LIGHT AND BOTH TOGETHER EQUAL A COMPLETE DAY. THE DAY ASSOCIATED WITH MORNING IS REFERRING TO LIGHT NOT A UNIT OF TIME.*
 - *Isaiah 45:7 “I form the light, and create darkness: I make peace, and create evil: I the Lord do all these things.”*
2. **Astronomical Twilight, Dawn, and Dusk:** *Astronomical twilight occurs when the Sun is between 12 degrees and 18 degrees below the horizon. Astronomical dawn is the time when the geometric center of the Sun is at 18 degrees below the horizon. Before this time, the sky is absolutely dark. Astronomical dusk is the instant when the geographical center of the Sun is at 18 degrees below the horizon. After this point, the sky is no longer illuminated. In the morning, the sky is completely dark before the onset of astronomical twilight, and in the evening, the sky becomes completely dark at the end of astronomical twilight. Any celestial bodies that can be viewed by the naked eye can be observed in the sky after the end of this phase.*

BIBLICAL DAY CONTINUED:

- **Astronomical Twilight:** *Each twilight phase is defined by the solar elevation angle, which is the position of the Sun in relation to the horizon. During astronomical twilight, the geometric center of the Sun's disk is between 12 and 18 degrees below the horizon. To the naked eye, and especially in areas with light pollution, it may be difficult to distinguish astronomical twilight from night time. Most stars and other celestial objects can be seen during this phase. However, astronomers may be unable to observe some of the fainter stars and galaxies as long as the Sun is less than 18 degrees below the horizon – hence the name of this twilight phase.*
- **Astronomical Dawn and Astronomical Dusk:** *The twilight phases in the morning are often called dawn, while the twilight phases in the evening are referred to as dusk. However, unlike the term twilight, which describes a time span, the terms dawn and dusk refer to moments during the transitions between day and night. Astronomical dawn is the moment when the geometric center of the Sun is 18 degrees below the horizon in the morning. It is preceded by night time. Similarly, astronomical dusk is the instant when the geometric center of the Sun is 18 degrees below the horizon in the evening. It marks the beginning of night time and the disappearance of the last shimmer of natural daylight.*





BIBLICAL DAY EXCEPTION:

1. IF YOU LIVE SOMEWHERE LIKE NORTHERN ALASKA OR NEAR EITHER OF THE EARTH'S POLES YOU CAN GO DAYS AND OR MONTHS WITH NO SUNLIGHT OR DARKNESS. (ONE SHOULD ASK ONESELF WAS MAN MADE TO LIVE THERE) NEEDLESS TO SAY A MECHANISM NEEDS TO BE PUT INTO PLACE SO THAT THEY CAN OBSERVE SABBATH WEEKLY. IN THESE INSTANCE WE RECOMMEND USING THE BIBLICAL/HEBREW DAY CLOCK. SO SABBATH WOULD START AT 6PM FRIDAY AND END 6PM SATURDAY.
 - Deuteronomy 32:8
When the most High divided to the nations their inheritance, when he separated the sons of Adam, he set the bounds of the people according to the number of the children of Israel.

BIBLICAL (HEBREW) TIME CHART

Biblical Time is set according to the number of the tribes of the Children of Israel: which is 12.
A new day begins at Sundown not Midnight. The following is a graph showing twelve **night** (evening) hours and twelve **day** (morning) hours in a 24-hour period.

Morning Hours are from 6:00 A.M. to 6:00 P.M.



Evening Hours are from 6:00 P.M. to 6:00 A.M

NIGHT HOURS
(Evening)

1 st hour	7:00 PM
2 nd hour	8:00 PM
3 rd hour	9:00 PM
4 th hour	10:00 PM
5 th hour	11:00 PM
6 th hour	12:00 AM
7 th hour	1:00 AM
8 th hour	2:00 AM
9 th hour	3:00 AM
10 th hour	4:00 AM
11 th hour	5:00 AM
12 th hour	6:00 AM

DAY HOURS
(Morning)

1 st hour	7:00 AM
2 nd hour	8:00 AM
3 rd hour	9:00 AM
4 th hour	10:00 AM
5 th hour	11:00 AM
6 th hour	12:00 PM
7 th hour	1:00 PM
8 th hour	2:00 PM
9 th hour	3:00 PM
10 th hour	4:00 PM
11 th hour	5:00 PM
12 th hour	6:00 PM

Below are examples of time in the Bible:

Matthew 20:8 - So when even was come, the lord of the vineyard saith unto his steward, Call the labourers, and give them their hire, beginning from the last unto the first. **9** And when they came that were hired about the **eleventh hour** [5:00 P.M.], they received every man a penny.

Acts 23:23 - And he called unto him two centurions, saying, Make ready two hundred soldiers to go to Caesarea, and horsemen threescore and ten, and spearmen two hundred, at the **third hour of the night**; [The third hour of the night is 9:00 PM.]

Mark 15:1 - And straightway in the morning the chief priests held a consultation with the elders and scribes and the whole council, and bound Jesus, and carried him away, and delivered him to Pilate. **25** And it was the **third hour** [9:00 A.M.], and they crucified him. **33** And when the **sixth hour** [12:00 P.M.] was come, there was darkness over the whole land until the ninth hour. **34** And at the **ninth hour** [3:00 P.M.] Jesus cried with a loud voice, saying, Eloi, Eloi, lama sabachthani? which is, being interpreted, My God, my God, why hast thou forsaken me?

THINGS TO CONSIDER

1. PROBLEMS WITH OBSERVATION/SLIVER:

- CLOUDY
- CANNOT READ ONE EXAMPLE IN THE BIBLE
- CONFUSION
- LOGISTICALLY IMPOSSIBLE (USE EZRA/NEHEMIAH EXAMPLE)

2. ANCIENT CIVILIZATIONS WERE NOT DUMB:

- THE ANCIENT ISRAELITES HAD CLOCKS: Isaiah 38:8
behold, I will bring again the shadow of the degrees, which is gone down in the sun dial of Ahaz, ten degrees backward. So the sun returned ten degrees, by which degrees it was gone down.
- DOGON PEOPLE OF MALI

Be'er Sheva, Israel

Jerusalem, Israel

Add destination

Route options CLOSE

Avoid

- Highways
- Tolls
- Ferries

Distance units

- Automatic
- miles
- km

Send directions to your phone

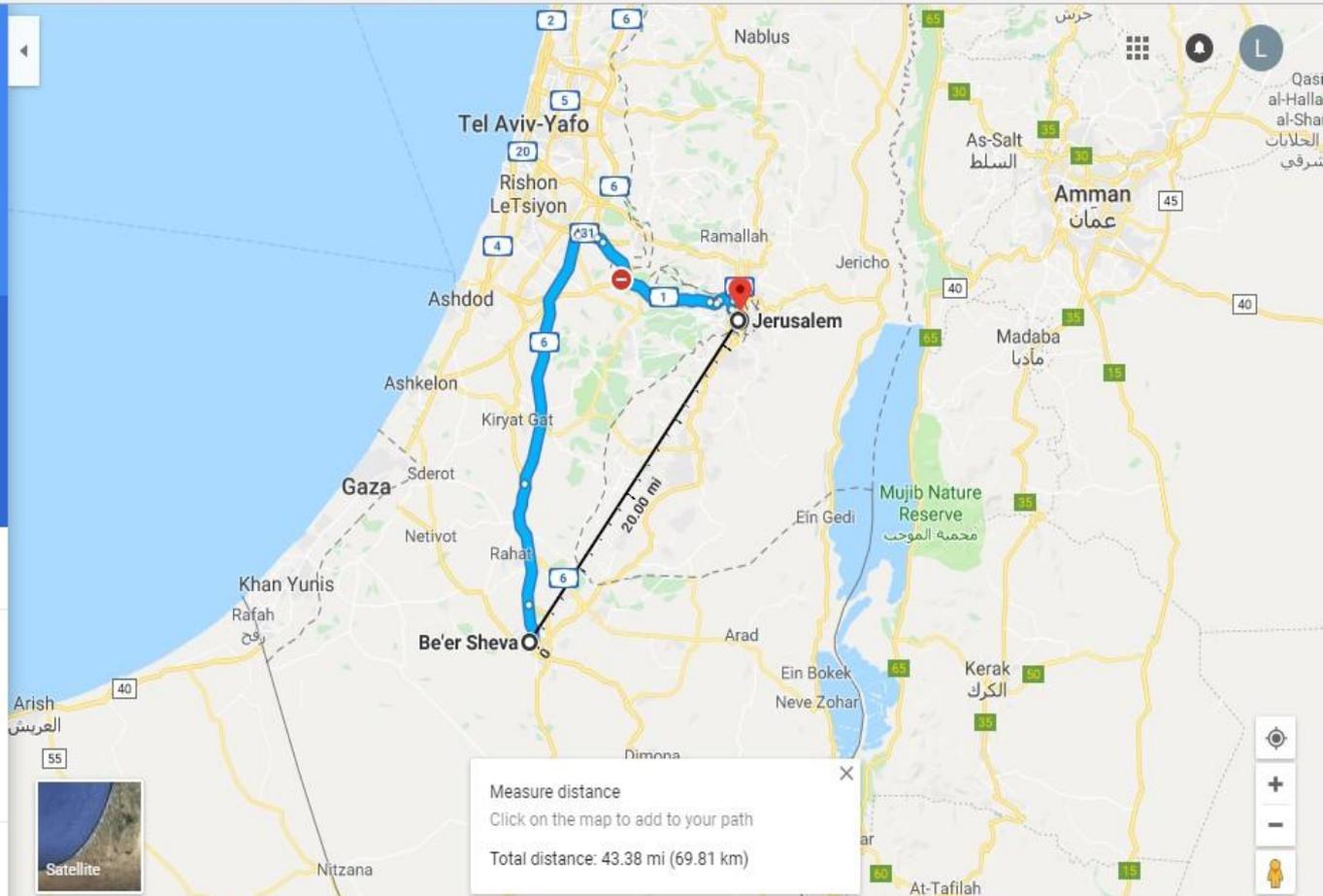
via Yitzhak Rabin Hwy/Route 6 **1 h 18 min**

Fastest route now, avoids road closure

75.1 miles

⚠ This route has tolls.

[DETAILS](#)



Measure distance

Click on the map to add to your path

Total distance: 43.38 mi (69.81 km)

NEW MOON CONJUNCTION:

- Months in the Israelite calendar are based on the phases of the Moon. A new month begins on the day of the Crescent Moon after the New Moon phase. Because the sum of 12 lunar months is about 11 days shorter than the solar year, a 13th month is periodically added to keep the calendar in step with the astronomical seasons.*
- A leap month occurs 7 times in the 19-year Metonic cycle. With years 3, 6, 8, 11, 14, 17, and 19 of the cycle being leap years, this corresponds to a frequency of every 2 to 3 years. The Metonic cycle, also known as Enneadecaeteris, is a period that comes very close to being a common multiple of the solar year and the lunar month (synodic month). With a deviation of just a few hours, 19 solar years have very nearly the same length as 235 lunar months, both periods amounting to 6940 days. This makes it possible for Israelite time reckoning to approximately stay in sync with the solar year simply by adding a certain amount of full months per Metonic cycle. Since 19 years with 12 months accumulate to 228 months, 7 extra months must be added to arrive at a total of 235 months per cycle.***

NEW MOON CONJUNCTION CONTINUED:

- **THINGS TO CONSIDER:** *Joshua and Hezekiah. (365/29.5) Also the leap year is not a conspiracy. The citizens of Sumer-an ancient civilization that existed in modern-day Iraq-also used a calendar that included 12 months. Sumerian citizens tracked 354 days each year. Occasionally, they added an additional month to the calendar to account for the remaining 11.25 days in the year. This is an example of an early leap month/year. Unlike other calendars, the Sumerian calendar did not have a uniform or consistent naming system for the included months. The Hebrews came out of Sumeria. Also most other Ancient civilizations had 360 day calendar that with 30 days and either had a leap year/month, later added one, or like the Egyptians had five days at the end of the year that did not belong to any month.*
- **IN THE PRECEPTS SLIDE FOLLOWING SOON WE WILL EXPLAIN WHY A BIBLICAL MONTH CANNOT SIMPLY BE COUNTING 30 DAYS.**

NEW MOON CONJUNCTION CONTINUED:

- **The Northeast African (Near East) Lunar calendar: *in which months are lunar but years are solar—that is, are brought into line with the course of the Sun—was used in the early civilizations of the whole Middle East, except Egypt, and in Greece. The formula was probably invented in Mesopotamia in the 3rd millennium BCE. Study of cuneiform tablets found in this region facilitates tracing the development of time reckoning back to the 27th century BCE, near the invention of writing. The evidence shows that the calendar is a contrivance for dividing the flow of time into units that suit society’s current needs. Though calendar makers put to use time signs offered by nature—the Moon’s phases, for example—they rearranged reality to make it fit society’s constructions. In Mesopotamia the solar year was divided into two seasons, the “summer,” which included the barley harvest in the second half of May or in the beginning of June, and the “winter,” which roughly corresponded to today’s fall–winter. (encyclopedia brittanica)***

NEW MOON CONJUNCTION CONTINUED:

- 1. In modern astronomy, the New Moon is when the Sun and Moon are aligned, with the Sun and Earth on opposite sides of the Moon. There are several reasons why it is impossible for us to see the New Moon in the sky. The alignment of the Sun, the Moon, and Earth, leaves the side of the Moon that faces Earth in complete darkness. Technically, this is called a conjunction or Syzygy in the Sun-Earth-Moon system (see illustration). In addition, the New Moon rises and sets around the same time as the Sun, bringing it too close to the Sun's glare to be seen with the naked eye.*
- 2. This intermediate Moon phase comes after New Moon and lasts until half of the Moon's surface is illuminated at First Quarter Moon. In modern astronomy, the Waxing Crescent Moon starts as the Moon becomes visible again after the New Moon conjunction, when the Sun and Earth were on opposite sides of the Moon, making it impossible to see the Moon from Earth. Waxing means that it is growing, while crescent refers to the curved shape similar to a banana or a boat. With some variations, the Waxing Crescent Moon rises in the daytime before noon and becomes visible in the day sky. It gets more visible around sunset but normally sets before midnight.*

NEW MOON CONJUNCTION CONTINUED:

3. *"A lexicographical tablet, from the library of the Assyrian king, Assurbanipan, gives the names, attached to several days of the Babylonian month; and among these, is the designation Shabattum, (applied to the fifteenth day of the lunar month). Still more recently, a similar use of Shabattum has been found in a text, which contains an account of the course of the moon, during the [lunar] month. Reference is here made, to the first appearance of the New Moon [Crescent], its ash-gray light until about the seventh day thereafter, its opposition with the sun on the fourteenth day, its aspects on the twenty-first and twenty-eighth days, and finally its disappearance on the twenty-ninth and thirtieth days, being the time of conjunction with the sun. In this description, which for minuteness, recalls the Polynesian, naming of the nights from successive aspects of the moon, the fifteenth day again appears as Shabattum." (Rest Days: A Study In Early Law and Morality,, pp. 238-239)*
- **SIDEBAR: LUNAR SABBATH=BABYLON/MOON DID NOT SHOW UP TILL DAY 4.**

NEW MOON CONJUNCTION CONTINUED:

4. **CALCULATING CONJUNCTION:** *Being that the movements and phases of the moon are very precise and dependable, it makes them function just like a giant clock in the sky. We can observe the moon's phases as they wane from the last quarter phase to the ever shrinking crescents and measure the decreasing distances between them and the rising sun in the east. Sometime after the third Sabbath of your month you may calculate the conjunction by making several observations or measurement sightings and math.*
- *While holding a measuring tape or ruler that is graded in centimeters and held at arm's length, measure the angular separation between the sun on the horizon and the waning crescent moon. Take several readings and record them. Just be sure to measure from the center of the sun to the center of the moon.*
 - *The next step is relatively simple math. Here is a brief explanation of the formula. It takes the sun 24 hours to make one complete circle (360°) over the earth. This equates to 15° per hour ($360^\circ/24 = 15^\circ$). The moon, however, takes approximately 24 hours and 50 minutes to make a complete circle. This equates to 14.5° per hour ($360^\circ/24.8333333333 = 14.5^\circ$). [Note: 24.8333333333 is 24 hours, 50 minutes in decimal form.] This means that the moon loses 0.5° on the sun every hour. Said another way, the sun gains 0.5 degrees on the moon every hour. Consequently, the moon loses approximately 12° every day ($.5^\circ \times 24$ hours). This is why a lunar month, the period from one conjunction to next, is about 29.5 days on average ($360^\circ/12^\circ$ per day = approximately 30 days to complete one cycle). Bear in mind, we are rounding numbers here.*

NEW MOON CONJUNCTION CONTINUED:

- **Measurements:** Take the average reading and divide that number by 0.5 (the number of degrees the sun gains on the moon each hour); the resultant number reveals how many hours from the time of the measurement until Conjunction. Then, if necessary, divide that number by 24 to see how many days until the Conjunction. Example: You have accurately measured that the Sun and Moon have an angular separation of 25° . Simply divide 25° by 0.5° (the number of degrees the sun gains on the moon every hour), which equals 50. This is how many hours until Conjunction! Then, if necessary, you can also divide 50 by 24 (number of hours in a day) to see how many days it will be until conjunction. $50 \text{ hrs.} \div 24 \text{ hrs.} = 2.1$ days away from Conjunction at the time of the measurements.



PRECEPTS:

1. **Genesis 1:14** *“And God said, Let there be lights in the firmament of the heaven to divide the day from the night; and let them be for signs, and for seasons, and for days, and years:”* **(THERE HAD ALREADY BEEN DAYS BEFORE THIS)**
2. **Leviticus 23:4** *“These are the feasts of the Lord, even holy convocations, which ye shall proclaim in their seasons.”*
 - **THE FEASTS MUST BE PROCLAIMED IN THEIR SEASONS. EXAMPLE TABERNACLES/ INGATHERING HAPPENS IN FALL (HARVEST)**
3. **Deuteronomy 16:1** *“Observe the month of Abib, and keep the passover unto the Lord thy God: for in the month of Abib the Lord thy God brought thee forth out of Egypt by night.”*
 - **“OBSERVE “ DOES NOT NECESSARILY MEAN LOOK UP IN THE SKY.**

PRECEPTS:

4. OBSERVE HEAR IS THE HEBREW WORD SHAMAR H8104.

- The KJV translates Strong's H8104 in the following manner: *keep (283x), observe (46x), heed (35x), keeper (28x), preserve (21x), beware (9x), mark (8x), watchman (8x), wait (7x), watch (7x), regard (5x), save (2x), miscellaneous (9x)*
- **Outline of Biblical Usage:** *to keep, guard, observe, give heed to keep, have charge of to keep, guard, keep watch and ward, protect, save life watch, watchman (participle) to watch for, wait for to watch, observe to keep, retain, treasure up (in memory) to keep (within bounds), restrain to observe, celebrate, keep (sabbath or covenant or commands), perform (vow) to keep, preserve, protect to keep, reserve (Niphal) to be on one's guard, take heed, take care, beware to keep oneself, refrain, abstain to be kept, be guarded (Piel) to keep, pay heed (Hithpael) to keep oneself from.*
- **Strong's Definition:** *shâmar, shaw-mar'; a primitive root; properly, to hedge about (as with thorns), i.e. guard; generally, to protect, attend to, etc.:—beward, be circumspect, take heed (to self), keep(-er, self), mark, look narrowly, observe, preserve, regard, reserve, save (self), sure, (that lay) wait (for), watch(-man).*

PRECEPTS:

5. **1 Samuel 20:5** *“And David said unto Jonathan, Behold, to morrow is the new moon, and I should not fail to sit with the king at meat: but let me go, that I may hide myself in the field unto the third day at even.”* **(DAVID KNEW IN ADVANCE. NEW MOON MEAN NEW MONTH)**
6. **Isaiah 47:13** *“Thou art wearied in the multitude of thy counsels. Let now the astrologers, the stargazers, the monthly prognosticators, stand up, and save thee from these things that shall come upon thee.”*
 - *It is clear the ancient Israelites had astronomers*
 - *Monthly Prognosticators predicted New Moon in advance using Science (Astronomy), Geography, and math (Geometry).*

MONTHLY PROGNOSTICATOR:

ALL DEFINITIONS WILL BE FROM THE WEBSTER'S DICTIONARY 1828

1. MONTHLY:

- **MONTHLY, adjective** Continued a month or performed in a month; as the monthly revolution of the moon. 1. Done or happening once a month, or every month; as the monthly concert of prayer; a monthly visit. **MONTHLY, adverb** Once a month; in every month. The moon changes monthly 1. As if under the influence of the moon; in the manner of a lunatic. [WEBSTER'S DICTIONARY]
- **STRONGS HEBREW H2320 CHODESH:** *KJV Translation Count — Total: 276x*
The KJV translates Strong's H2320 in the following manner: month (254x), new moon (20x), monthly (1x), another (1x). *Outline of Biblical Usage: the new moon, month, monthly the first day of the month he lunar month. Strong's Definition* *chôdesh, kho'-desh; from H2318; the new moon; by implication, a month:—month(-ly), new moon.*

MONTHLY PROGNOSTICATOR:

2. PROGNOS'TICATE,

- **verb transitive [from prognostic.]** 1. To foreshow; to indicate a future event by present signs. A clear sky at sunset prognosticates a fair day. 2. To foretell by means of present signs; to predict. I neither will nor can prognosticate To the young gaping heir his father's fate.
- **PROGNOS'TICATOR, noun** A foreknower or foreteller of a future event by present signs.
- **STRONGS HEBREW H3045 YADA:** KJV Translation Count — Total: 947x
The KJV translates Strong's H3045 in the following manner: know (645x), known (105x), knowledge (19x), perceive (18x), shew (17x), tell (8x), wist (7x), understand (7x), certainly (7x), acknowledge (6x), acquaintance (6x), consider (6x), declare (6x), teach (5x), miscellaneous (85x). Outline of Biblical Usage: to know, learn to know to perceive, to perceive and see, find out and discern to discriminate, distinguish to know by experience to recognise, admit, acknowledge, confess to consider to know, be acquainted with to know (a person carnally) to know how, be skilful in to have knowledge, be wise Niphal) to be made known, be or become known, be revealed to make oneself known to be perceived to be instructed (Piel) to cause to know (Poal) to cause to know (Pual) to be known known, one known, acquaintance (participle) (Hiphil) to make known, declare (Hophal) to be made known (Hithpael) to make oneself known, reveal oneself

MONTHLY PROGNOSTICATOR:

Strong's Definitions :

יָדָע yâda', yaw-dah'; a primitive root; to know (properly, to ascertain by seeing); used in a great variety of senses, figuratively, literally, euphemistically and inferentially (including observation, care, recognition; and causatively, instruction, designation, punishment, etc.):—acknowledge, acquaintance(-ted with), advise, answer, appoint, assuredly, be aware, (un-) awares, can(-not), certainly, comprehend, consider, × could they, cunning, declare, be diligent, (can, cause to) discern, discover, endued with, familiar friend, famous, feel, can have, be (ig-) norant, instruct, kinsfolk, kinsman, (cause to let, make) know, (come to give, have, take) knowledge, have (knowledge), (be, make, make to be, make self) known, be learned, lie by man, mark, perceive, privy to, × prognosticator, regard, have respect, skilful, shew, can (man of) skill, be sure, of a surety, teach, (can) tell, understand, have (understanding), × will be, wist, wit, wot.

LAST POINTS:

WE HAVE SEEN THE KJV AND MASORETIC TEXT. LETS LOOK AT THE VULGATE:

- **Isaias 47:13 Biblia Sacra Vulgata (VULGATE)**
13 Defecisti in multitudine consiliorum tuorum. Stent, et salvent te augures caeli, qui contemplabantur sidera, et supputabant menses, ut ex eis annuntiarent ventura tibi.
- **TRANSLATED: Isaiah 47:13 “13 have failed in many counsels. Now the astrologers stand and save thee, they that gazed at the stars, Those teaching concerning the months, From those things that come on thee!.”**

Deuteronomy 32:21 *They have moved me to jealousy with that which is not God; they have provoked me to anger with their vanities: and I will move them to jealousy with those which are not a people; I will provoke them to anger with a foolish nation. Romans 10:19* *But I say, Did not Israel know? First Moses saith, I will provoke you to jealousy by them that are no people, and by a foolish nation I will anger you. Romans 11:11* *I say then, Have they stumbled that they should fall? God forbid: but rather through their fall salvation is come unto the Gentiles, for to provoke them to jealousy.*



# Of Months	Hebrew Calendar Names	# Of Days	Corresponding Gregorian Months
1	Nisan* (Abib**)	30	March/April
2	Zif	29	April/May
3	Sivan	30	May/June
4	4th Month	29	June/July
5	Ab	30	July/August
6	Elul	29	August/September
7	Ethanim (Tishri)	30	September/October
8	Bul	29 or 30	October/November
9	Chisleu	29 or 30	November/December
10	Tebeth	29	December/January
11	Sebat	30	January/February
12	Adar (2 Adar***)	29	February/March