Laws of Sanctification of the New Month, Chapter 15 (Auto Translated)

English

Auto Translated

Shiur Overview

Summary of Shiur – Rambam Hilchos Kiddush HaChodesh, Chapter 15

General Introduction and Structure of Chapter 15

The purpose of the entire calculation: To determine whether we will see the moon on the thirtieth night after 29 complete days of the previous month. For this, one needs to know two things: where is the sun, and where is the moon.

The Rambam's structure – sun and moon in parallel: The Rambam intentionally creates the same structure for the sun and moon, even though they are completely different systems. He calls them by similar names in order to make it easier to calculate. The Rambam provides a "calculator" – an algorithm – not an explanation of the true mechanism, but rather rules for how to calculate. He himself says later (Chapter 17) that whoever wants to understand the "why" must study the scholars who have spoken about it. The Rambam knew that Jews would be great scholars in learning, but would not study secular sciences/astronomy, therefore he gave them a practical method without the why.

The structure for both (sun and moon):

1. Calculate the **mean course (mahalach ha'emtza'i)** – divide the entire cycle equally over all days, as if it travels the same number of degrees each day.

2. Calculate the **course (maslul)** – the distance between the mean and the apogee.

3. According to the course, find the **portion (maneh/omnas hamaslul)** – the number that one adds or subtracts from the mean in order to obtain the **true course (mahalach ha'amiti)**.

For the moon it is more complicated because even the course itself requires a special calculation (doubling the distance + chart), but the Rambam provides rules for everything.

Halacha 1 – The Algorithm: Emtza HaYare'ach, Emtza HaMaslul, Emtza HaShemesh, Merchak HaKaful

The Rambam's words: "If you wish to know the true position of the moon on any day you desire... first calculate the mean of the moon for the time of sighting for that night you desire, and calculate the mean of the course and the mean of the sun for that time. Subtract the mean of the sun from the mean of the moon... double it... and this is called the doubled distance (merchak hakaful)."

Explanation:

One must calculate three numbers: (1) mean of the moon for the time of sighting, (2) mean of the course, (3) mean of the sun – all for the same day/night. Then one subtracts the mean of the sun from the mean of the moon, and doubles the result. This is called **merchak hakaful** (doubled distance).

Insights and Clarifications:

1. **"For the time of sighting" – means with correction for sun position:** The mean of the moon "for the time of sighting" doesn't mean simply the mean of the moon for that day, but with the added correction according to where the sun stands in that season of the year (as learned in previous chapters).

2. **Why subtract the mean of the sun from the mean of the moon:** This gives the **distance** between the sun and moon. This makes sense because the entire goal is to know how far the moon is from the sun – this determines whether we can see it.

3. **Why double it (tichpol oso)?** The Rambam gives no reason – "like the verse," he just says to do so. Since all numbers are approximate (according to rules, not exact), one can "on the basis of faith" understand why one doubles. The calculation of why is not the subject of this shiur.

Halacha 1 (continued) – The Limited Range of Merchak HaKaful on the Night of Sighting

The Rambam's words: "It is never possible that this doubled distance on the night of sighting when they will see the moon" – it cannot be less than 5 degrees and not more than 62 degrees.

Explanation:

On the night of sighting, the doubled distance is always between 5 and 62 degrees. Therefore, the Rambam's chart only needs to cover this range.

Insights and Clarifications:

1. **Reason why the range is limited:** The moon travels throughout the month closer and farther from the sun. At the time of sighting, it is one of the closest to the sun that it can be – it is at sunset slightly below "zero" (the horizon). Therefore it must be a minimum of 5 degrees away, and a maximum of 62. At other times of the month it can be farther, but this is not relevant for the night of sighting.

2. **Practical ramification:** The Rambam's chart is therefore short – he doesn't need to cover all 360 degrees, only the small range of 5–62. If other numbers were relevant, the chart would have needed to be longer.

Halacha 1 (continued) – The Chart of Merchak HaKaful: Adding to Emtza HaMaslul → Maslul HaNachon

The Rambam's words (the chart): According to the doubled distance, one adds a certain number of degrees:

Doubled Distance (degrees)	Add
5 or less	0 (nothing)
6–11	1
12–18	2

19–24	3
25–31	4
32–38	5
39–45	6
46–51	7
52–59	8
60–63	9

Explanation:

One looks at the doubled distance and according to the chart adds a correction. This result — the mean of the course plus the correction from the chart — is called **maslul hanachon** (the correct course of the moon).

Insights and Clarifications:

1. **Maximum addition is 9 degrees:** One never adds more than 9, because the doubled distance on the night of sighting cannot be more than 62–63 degrees.

2. **At 5 degrees or less – no addition:** This means that at such a small distance, the mean is already close enough to the true that one doesn't need to correct (although this is only one step of the entire calculation).

3. **The correct course is explained as analogous to the course of the sun, but with an added step:** For the sun, the course is simply the distance from the apogee to where the sun stands. For the moon, however, one must first double the distance (double the distance between the mean of the sun and mean of the moon), then add according to the chart to the **mean of the course** — only then does one have the correct course. This is a more complicated procedure than for the sun.

4. **Example:** If the distance between the mean of the sun and mean of the moon is 20 degrees, one doubles it to 40. According to the chart (39–45 = add 6), one adds 6 to the mean of the course. If the mean of the course is 100°, the correct course comes out = 106°.

5. **Important clarification:** The correction from the doubling is added to the **mean of the course**, not to the doubled distance itself. This means: correct course = mean of the course + correction according to chart.

Manas HaMaslul — Subtracting or Adding from Emtza HaYare'ach

The Rambam's words: One looks at the correct course: if it is less than 180 degrees — one subtracts the portion of the course from the mean of the moon for the time of sighting. If more than 180 — one adds. **"And what will be the mean after you add to it or subtract from it is the true position of the moon."** If it is exactly 180 or 360 — the mean of the moon equals the true.

Explanation:

This is the same rule as for the sun: under 180° one subtracts, over 180° one adds. The result is the **true position of the moon (mekom hayare'ach ha'amiti)**.

Insights and Clarifications:

1. **The parallel to the sun calculation:** Just as with the sun, where one added or subtracted the portion from the mean in order to obtain the true, so too with the moon. The difference is only that for the moon one must first go through a more complicated procedure (doubling + chart) in order to obtain the correct course, and only then does one know what the portion is.

2. **At exactly 180 or 360:** If the correct course is exactly 180 or 360, the mean of the moon equals the true position of the moon — no correction is necessary. This makes sense, because one is on the same line.

Chart of Manas HaMaslul

The Rambam's words (the chart):

Correct Course	Portion
10°	0°50′
20°	1°38′
30°	2°24′
40°	3°6′
50°	3°44′
60°	4°16′
70°	4°41′
80°	5°0′
90°	5°5′
100°	5°8′
110°	4°59′
120°	4°44′
130°	4°11′
140°	3°33′
150°	2°43′
160°	2°5′
170°	0°59′
180°	0

Explanation:

According to the correct course, one looks in the chart how many degrees and parts the portion is. If the correct course is more than 180, one subtracts it from 360 and uses the same chart.

Insights and Clarifications:

1. **Symmetry over 180°:** If the correct course is more than 180, one subtracts it from 360 and uses the same chart. This is the same principle as with the sun — the portion is symmetric around 180°, because it is "the second side of the same circle."

2. **Interpolation between tens:** If the correct course doesn't fall on a round ten (for example 65° instead of 60° or 70°), one must interpolate — calculate how much of the difference between the two portions comes out for the intermediate number. This is the same correction of the portion as in the example of the sun's portions.

Example — Calculation of the True Position of the Moon for Friday Night, 2 Iyar Year 5738

The Rambam's words: The Rambam calculates an example: from the epoch (3 Nisan) until Friday night 2 Iyar year 5738 are 29 days.

Explanation:

One calculates all steps of the calculation on a concrete example.

Insights and Explanations (steps of the example):

1. **Mean of the sun** for that night: 35°38′33″.
2. **Mean of the moon** for that night: 53°36′39″.
3. **Mean of the course**: 103°21′46″.
4. **Distance** (mean of moon minus mean of sun): 17°58′6″.
5. **Doubling the distance**: 35°56′12″.
6. **Adding according to chart** (35 falls in 32–38 = add 5): the correction is added to the **mean of the course** 103°21′46″ + 5° = **correct course = 108°21′46″**.
7. **Portion of the course for 108°**: between 100° (= 5°8′) and 110° (= 4°59′), interpolated for 108° = **5°1′**.
8. **Because the correct course (108°) is less than 180°**, one subtracts the portion from the mean of the moon: 53°36′39″ minus 5°1′ = **48°35′39″**.
9. **Seconds to parts**: because 39 seconds is more than 30, one makes it a part — comes out **48°36′**.

True position of the moon: 48°36′ = **constellation** .10 **Taurus (mazal shor), 18°36′ from the 19th degree**. (Because constellation Aries (mazal taleh) = 0–30°, constellation Taurus = 30–60°, so 48° minus 30° = 18° in Taurus.) The Rambam gives the notation: מ״ח ל״ו.

"And in this way you shall do the calculation for any time you desire from the epoch until the end of the world"

The Rambam says that with the same calculation one can calculate the true position of the moon for any time.

What comes next: The next two chapters will teach additional necessary things for the calculation of sighting — the latitude of the moon and other factors. Those chapters are longer and more difficult, but after that come two chapters that are less calculation and more laws.

Full Transcript

Rambam Hilchos Kiddush HaChodesh Chapter 15 – The True Position of the Moon

Introduction – Structure of the Calculation of the Sun and Moon

Good day, today we are learning the holy Rambam Hilchos Kiddush HaChodesh Chapter 15, the fifteenth chapter.

So the topic of this chapter is, in the previous chapter we learned how one can calculate where the moon is, by taking and considering that there are two mean courses (mahalachim emtza'im), with the calculation that the moon has two spheres (galgalim) and it travels two courses, two orbits. Yes.

But first we will say yasher koach (thank you) to the donors, and all Jews say something. In order for the moon to be able to function, one must receive light from the sun, and in the nimshal (application), the mashal (parable), we will praise those who support our shiur (lecture). First and foremost is the dear friend (yedid nefesh) HaRav Rabbi Yoel HaLevi, with all his other partners in this mitzvah, and all the members of the shiur.

And now it is also erev Rosh Hashanah, and the verses of Rosh Hashanah. The essential secret of Rosh Hashanah is to know the sanctification of the new month (kiddush hachodesh), here in these great foundations, to know if one wants to delve deeply. One will do so. Yes, the Alter Rebbe said that there is no blessing of the new month (birkas hachodesh), no blessing of the month on the Shabbos before Rosh Hashanah, the Shabbos that should have been blessing the month of Tishrei, because "kadsheihu shamayim" (the Heavens sanctify it), the Almighty blesses Rosh Chodesh. That's not correct, because the whole thing about Rosh Hashanah is that the Jews say, it says in the Midrash, that when the Jews make the month, then the beis din (court) in Heaven is established. In short, but one doesn't follow the moon, therefore one must indeed know how the moon truly is. In short, not for now this discussion. What in life is a thing.

The Goal of the Entire Calculation

And they said, I will say briefly (kitzur hadavar), the entire goal of the whole thing is to find out if we will see the moon tonight, the thirtieth night after 29 complete days from the previous month. Sometimes one cannot see it, sometimes one can indeed see it, sometimes one cannot see it.

In order to know this, one must know two things: where is the sun and where is the moon.

The Rambam's Structure – Similar Rules for Sun and Moon

How is the sun? We learned it. I want to explain here the structure, because the Rambam makes the same structure for the sun and the moon, although the sun and the moon are completely different systems, the Rambam made the same structure and called them similar names, so that it would be easier for people to calculate.

So the Rambam has essentially given here a calculator, you could say an algorithm, not the true way how it works, and doesn't calculate anything himself. The Rambam gave rules, laws (halachos), just as the Rambam in all halachos, gave rules, laws, to be able to understand how to calculate, not to be able to understand that one can calculate whether we will see the moon today.

So we learned that the sun is like this, the same thing can be seen with the moon, that there is something called the mean course (mahalach ha'emtza'i), and there is something called the true course (mahalach ha'amiti). The mean is literally, take the cycle that it travels, and divide it precisely by thirty days, whatever, twenty-nine and a half days, whatever the calculation is, divide it precisely, and as if it travels the exact same amount of degrees each day, you will know precisely where the sun or the moon is.

Afterwards, the Rambam said, this is done first, step 1. Then one adds what, certain corrections (tikunim), also according to certain rules, the Rambam doesn't trouble himself to explain to us why and for what there are these rules. You will know the true place where the moon actually is today. That's all.

How It Was Done with the Sun

Now, and how did they do it? Let me add another thing. How did they do it with the sun? They did it like this: They said with the sun that there are two numbers: there is the mean course, where it is according to the mean course. Then one added another number, the height of the sun (govah hashemesh). All

these numbers are degrees, right? All are numbers of degrees, the height of the sun.

And according to how far, it was called a maslul (orbit), right? Maslul means how far, as it were, the two numbers are from each other, how far the mean was from the height, according to how far it gave us a chart to add or subtract, according to which part of the year one is in, according to how many degrees it is, basically, whether it was more or less, you need to subtract or add something called an umnah or umnas hamaslul (the portion of the orbit). Umnas hamaslul is the number that one adds to the mean in order to know the correct one, the true one. And how does one know the umnah? According to the calculation of the distance (merchak) of the maslul. Right? That's the structure.

The Same Structure with the Moon

Now, with the moon the Rambam makes the same structure. He will tell you, take the two numbers of the moon, figure out something called a maslul. According to how much the maslul is, calculate what the umnah is. That umnah, take off or lay down, to know the place of the true position of the moon. That's the same sort of structure he makes for the moon.

With the moon it's a bit more complicated. In order to know both what the maslul is and what the course of the maslul is, one will need to make a certain calculation. But of course, one won't need to make the calculation, the Rambam will simply say rules that will be according to the calculations. And the reason for this is because the moon is even more complicated, as we spoke about in the previous chapter, but that's not our topic now. We will only say what the Rambam's algorithm for doing this is.

So let's simply read what he says.

Halacha 1 – The First Step: Calculate Emtza HaYarei'ach, Emtza HaMaslul, Emtza HaShemesh

The Rambam says, **"If you want to know"** – if a Jew wants to know, and you certainly want to know – **"the true position of the moon on any day you want"**, any day you want. Essentially, you only want one day in the month, but this works for any day. Any day you want to know – in practice, the Rambam's calculation will only work for the beginning of the month, but anyway – if you want to know how truly the moon is any day, you will do as follows: First do, write down for yourself a few numbers. And the Rambam will give names for each one of the numbers, which one can easily keep in mind.

"First calculate", calculate – yes, "totzi" means calculate, right? – **"emtza hayarei'ach"** (the mean of the moon). We learned, emtza hayarei'ach means where the moon is, the large sphere where it is. **"For the time of sighting"** (lish'as hara'iyah). We learned – ah, sorry, emtza hayarei'ach lish'as hara'iyah means one must add the correction for where the sun is, because according to where in the year it is, it's different for the time of sighting. **"For that night that you want"**. Okay, figure out the number called emtza hayarei'ach lish'as hara'iyah for the night you're looking for.

Then do two more numbers, which we have both these numbers we already learned earlier how to get them. **"Calculate emtza hamaslul"** (the mean of the orbit), which we also learned in the previous chapter how to calculate the emtza hamaslul from the epoch (ikar) until that day. The same thing, **"emtza hashemesh"** (the mean of the sun), which we learned two chapters back, three chapters back, how to figure out the emtza hashemesh, **"for that time"**, for the same time, the same day.

Merchak HaKaful – The Distance Between Sun and Moon

Now you will do as follows, make a subtraction. Subtract, **"subtract emtza hashemesh from emtza hayarei'ach"**. Subtract the number of emtza hashemesh from emtza hayarei'ach. That means, in other words, you want the distance. That means, how much is between the emtza hashemesh and emtza hayarei'ach? This makes a lot of sense. If you think about it, I want after all to know here how far the sun is from the moon, so there's such a connection that one will calculate.

Anyway, this is the calculation. Subtract, let's say emtza hashemesh is three hundred, and emtza hayarei'ach is three hundred and twenty, you have twenty in between. Yes? And remember, if it comes out backwards, one can add, we know how to do subtraction backwards also already from the Rambam's previous rules.

Now, there remains, let's say a number 20, yes, **"and what remains"**, what remains after you have subtracted the emtza hashemesh from the emtza hayarei'ach, something remains. **"Double it"**, double it, make forty from it. Why? **"As decreed in the text"** (k'gezeiras hakasuv). The Rambam says this is how it will be done. **"And this is called, merchak hakaful"** (the double distance). In other words, double the number of how far the sun is from the moon today, the mean. Both are not precise numbers, regarding this is to understand that the rules, you understand, since everything is only approximate according to rules, you can basically believe why one should add precisely a double. The calculation of why is not now our discussion to explain. I'm only saying the Rambam's halacha with simple faith (emunah peshutah). Not simple faith, the Rambam will say later in chapter 17, if you want to know why all these things you need to learn from the sages (chachamim) who spoke about it. But what the Rambam says here is, what should you do? Right?

In other words, let's say step 1: Make a subtraction of emtza hashemesh from emtza hayarei'ach, and the difference that remains make double. You have a double number. So now, what will you do with this double? So, I will tell you what you will do.

Halacha 2 – The Range of Merchak HaKaful at Leil HaRa'iyah

The Rambam says, **"And we explained, that we did not come with all these calculations that we made in these chapters except to know the sighting of the moon"**. We are not concerned with what happens on the 15th of the month, the 16th, only the time of sighting (zman hara'iyah), that which we want to know.

The Rambam says a simple rule, I want to tell you something. **"It is never possible that this double distance on the night of sighting when they will see the moon"**, that means the double distance, that double how far the sun is from the moon, cannot be at the night of sighting more than five degrees to sixty-two degrees. It cannot be more than this and not less than this. So it's between these two numbers.

And in order to remember the reason is very simple, we already spoke about this, that the moon passes through the sun, also throughout the month it is closer and farther from the sun, and at the time of sighting it is the closest, one of the

closest to the sun that it can be. So automatically the fact is, at sunset a bit below zero, because there is the horizon (ofek), it comes out that the moon must be from five. It cannot be otherwise, if not the whole thing is not relevant. So in short, it cannot be more than five. So the double distance which is even more, in short, the moon must be between five and sixty-two degrees away from the sun. The best of the month it can be farther, but in the period, in the month, it is always between these numbers.

Therefore the Rambam says that you don't need to worry about other numbers. Therefore, says the Rambam, I will give you a chart now. What should you do with this double distance? Okay?

Halacha 3 – The Chart: How Much to Add According to Merchak HaKaful

The Rambam says, **"The matter goes like this, we have prepared this chart"**, look at this double distance. That means, I will give you a chart, says the Rambam, only between five and sixty-two. Okay? You can only double one of these numbers. It's not relevant, because there won't be any other number. If there wasn't any other number, the Rambam's chart would have had to be longer. And he tells you, my chart will be short, because for the night of sighting no other times are relevant.

And he says a chart, and whoever wants, we already spoke that one must say the charts. So the chart is very simple:

- If it's five degrees, leave it. You don't need to add anything. In other words, if it's less than five degrees or five degrees, the mean moon will be like the true moon. Sorry, we're not yet at the mean moon, sorry, I made another mistake. You don't need to add anything to the double distance. Keep it as it is, you will soon see what will be done with it.

- If it's from 6 to 11, add 1

- From 12 to 18, add 2

- From 19 to 24, add 3

- From 25 to 31, add 4

- From 32 to 38, add 5

- From 39 to 45, add 6

- From 46 to 51, add 7

- From 52 to 59, add 8

- From 60 to 63, add 9

If it's more, it's not relevant.

Maslul HaNachon (The Correct Orbit)

Now, in other words, now you know what the matter truly is. The conclusion is, let's say earlier, we said a random example. It comes out that the distance between the sun and the moon, the emtza hashemesh from the emtza hayarei'ach is twenty, and it was doubled to forty. Now, it was for example forty, it comes out, how much must one add. From 39, it says one must add 6, add 6, one is at 46. Okay? Just a rule, when it's 40, one adds 6, one is at 46 degrees.

This number is called **maslul hanachon** (the correct orbit). It's the true maslul. Again, why all these things is, learning is not now. But the for... the number that you now have after the doubling, after the adding, after adding, the doubling, according to how many numbers you got. The conclusion of the doubling is a certain number. Add to that number according to our chart. This number is called maslul hanachon. Okay, in other words it's the correct maslul.

Remember, the order of things here is, that one adds according to the maslul, one adds an umnah. So with the sun it was very simple. The maslul is simply the distance from the height to where the sun is today. And here, the maslul is the double distance plus a certain rule. That's what the maslul is.

Manas HaMaslul — Subtract or Add

Now, you will look at the maslul hanachon, and so. You will subtract or take an umnah, the manas hamaslul (the portion of the orbit). What will you do? It's the same rule basically that was learned with the sun.

If it's less than 180 degrees, you will subtract the manas hamaslul from the emtza hayarei'ach lish'as hara'iyah, and that will be the true position of the moon (makom hayarei'ach ha'amiti), not the maslul hanachon. We're already past the maslul hanachon. The maslul hanachon tells us which umnah to subtract or lay down. But does one lay down or give? The rule is, as was learned earlier, less than 180 degrees one subtracts, more than 180 degrees one adds the manas hamaslul hanachon to the emtza hayarei'ach lish'as hara'iyah, **"and what will be the mean after you add to it or subtract from it is the true position of the moon"**. This is what we're seeking (mevukash), we're looking for the true position of the moon at the time of sighting.

The true position of the moon comes from subtracting the manas hamaslul hanachon from the emtza hayarei'ach, you have the true moon. This is always, just as with the sun, one added the umnah or subtracted from the mean, the true one came. Only here is a complicated situation, that in order to find what the umnah is, one must first make a double course, and then add so it will be the correct maslul, and then you know the umnah. All this, so simple is this.

And if, it's understood, as was learned then, **if it's exactly 180 or 360**, the meaning is exactly the same, then the mean is the true, as was learned in common sense (sechel hayashar) also.

Chart of Manas HaMaslul

What is the manas hamaslul? Further, as decreed in the text (gezeiras hakasuv), the Rambam says degree by degree:

- **If the true course is 10, the amount is 50 parts**
- **If it's 20, it's 1 degree and 38 parts**
- **If it's 30, it's 2 degrees and 24 parts**
- **If it's 40, it's 3 degrees and 6 parts**
- **If it's 50, it's 3 degrees and 44 parts**
- **If it's 60, it's 4 degrees and 16 parts**
- **If it's 70, it's 4 degrees and 41 parts**
- **If it's 80, it's 5 degrees**
- **If it's 90, it's 5 degrees and 5 parts**
- **If it's 100, it's 5 degrees and 8 parts**
- **If it's 110, it's 4 degrees and 59 parts**
- **If it's 120, it's 4 degrees and 44 parts**
- **If it's 130, it's 4 degrees and 11 parts**
- **If it's 140, it's 3 degrees and 33 parts**
- **If it's 150, it's 2 degrees and 43 parts**

Yes, as we learned earlier.

- And if it's 160, it's once and 65 parts

- If it's 170, it's 59 parts

- If it's exactly 180, nothing is missing, it's very good, and they've already learned it.

If it's more than 180, they've already learned it. You can simply subtract and know, because the negative, the second side of the same circle. It comes out, if it's more than 180, you don't need to go into saying it. You simply subtract it from 180, and you have the number of the amount. The same thing.

We said earlier, if you're not holding at a ten, but in between, figure out how much it is, take how much it is between sixty or seventy, it goes three and sixty, just calculate how much comes out the tikun d'mana for each one, between sixty and seventy, you'll have the correct number, just as we say this by the example of the degrees of the sun.

Example — Calculating the True Position of the Moon

And now the Rebbe is going to give an example, and we're going to continue learning an example, truly to learn one must calculate it, but we're now learning what it says.

We want to know, for example, **the true position of the moon**, further, **on the night of erev Shabbos, which is the second day of Iyar of the year of the epoch, the year 5538**, it comes out how many days was it from the epoch until this night? 29 days, that's the next month, right? You remember that the epoch began on the 3rd of Nissan.

So what does it mean to figure out what is the mean sun for this night? What is this when, the Rambam says, **35 38 33**? You'll know the mean moon for this night, which will be **53 36 39**, and the mean course will come out **103 21 46**. Yes? Yes.

So subtract... the mean sun from the mean moon, yes? Sorry, the mean sun from the mean moon, the mean sun from the mean moon, subtract, it will remain seventeen, five and eighty, and six. That's the distance. Double it. Double. It comes out double of... **35 56 12**. 35 56 12.

It comes out, what I learned that at thirty-five we're talking about five degrees? Add five. It will come to that the true course is one hundred and eighty and one and twenty parts. And the Rambam says, here you don't need to say so much. Because of the parts, because, again, the parts are too small to make a difference regarding the table.

Now, we find what the course... we look in our chart, what is the amount of the true course which is 180, and... sorry, 180 has no degrees. 108 comes out the amount is five degrees and one part.

Now, we learned that they're holding less than 180, meaning that you have to subtract the amount, not add. You subtract from the mean moon, which we've already seen earlier what it is, five degrees and one part, we're left with 48 degrees and 35 parts and 39 seconds.

Now, make the seconds into a part and add to the parts. Why? Because we have more seconds than sixty, right? Thirty-nine you have... sorry, that's not right. Forty-eight degrees, and thirty-five parts, and thirty-nine seconds. Why do you need to make the seconds a part? Therefore the true position of the moon at this time is in the constellation of Taurus. Yes, because the four is... no, no, no, I didn't translate here. Sorry, back to... ah, because there's only thirty... sorry, if there's more than... ah, thirty seconds in a part. Ah, if there's more than thirty seconds, you can make it a part. Okay, so...

It comes out that the true position of the moon is the constellation of Taurus, eighteen degrees and six and thirty parts of the nineteenth degree, the sign **48 36**, **and in the same way you will calculate any time you want from the epoch until the end of the world**, you'll do the whole complicated calculation, you'll sit down with the chart, which makes it much simpler, you'll know where the true moon is, if someone wants to know where the true moon of the month is. He already knows.

Summary and What Comes Next

The next two chapters are going to teach us other things like the latitude of the moon and other things that you need to know in order to know for the calculation of the sighting. But now you already know where the moon truly is. Yes, because the next two chapters are much, much longer chapters. Okay, there are still two difficult chapters, and after that I think two that are less calculation and a bit more laws. It's not difficult, I mean to say... yes. You have to calculate very simply.

The Rambam even strangely simplified for us, he even said that we don't need to know why. The Rambam knew that Jews are going to be great scholars, and there he doesn't need to give them so much help, but with math they're going to have difficulties, they're not going to learn any secular studies. So he helped them with the... at least here, they'll be able to learn this. Okay.