

## Calculating a chart by hand

These are step by step instructions for calculating a chart by hand. Koch houses are used in this example. The intermediate cusps change when Placidus houses are used instead. The MC and IC axis and the ASC and DESC axis remain the same. There are numerous other house systems. The latest poll on the topic I saw rated Placidus the most common and Koch was the second most common in usage. The charts calculated are available in computer generated format, Kepler 4.6 program is used to calculate these.

### HOW TO CALCULATE SIDEREAL TIME - required for additional calculations

1. Convert local birth time to 24 hr clock.

for example 5:14 am = 05:14

7:26 pm = 19:26

2. Add time difference to GMT when calculating births in the western hemisphere. PST = +08:00; PDT = +07:00;

MST = +07:00; MDT = +06:00; CST = +06:00;

CDT = +05:00; EST = +05:00; EDT = +04:00.

Let's take Patrick's birth time 6:07 am EDT, August 14, 1991 in Toronto, Ontario

#### hh mm ss

06 07 00

+ 04 00 00 (EDT) Eastern Daylight time observed

10 07 00

+ 1 39 add acceleration from calculation 1) shown below

10 08 39

+ 21 27 41 add sidereal time for midnight Aug 14, 91

31 36 20

- 5 17 32 deduct actual time from atlas for location 2)

26 18 48 for Eastern longitudes add

-24 00 00 when total exceeds 24 hours deduct 24 hours

**2:18:48**

This is the same as the computer calculated sidereal time

1) convert GMT into minutes; hours into minutes  $60 \times 10 = 600$  add minutes  $600 + 7 = 607$ ; multiply by 9.87 = 5985;

divide the result by 60 = 99.750; this result is in seconds so simply convert 99" to minutes and seconds 1'39".

Acceleration is always added to GMT as it provides us with UT (=Universal Time)

2) these are shown in the atlas but can be also calculated from longitude 79°E 23' (this is the longitude for Toronto) Multiply the degrees by 4 ( $4 \times 79 = 316$ ). Convert the result into hours and minutes by dividing by 60.

$316:60 = 5$  hours 16 minutes + 1 min 32 seconds = **5h 17' 32"** next multiply the minutes of longitude by 4 and divide by sixty to convert result into minutes and seconds.  $4 \times 23 = 92 = 1$  min 32 seconds; add this to the hours and minutes

### A BIRTH IN THE EASTERN HEMISPHERE

OCT 29, 1955 AT 12:48 PM EET (-2H); HELSINKI 24° E 53'; 60°N10'

12:48:00 Birth time

-02:00:00 Difference to GMT

10:48:00 GMT time

+ 1:46 \* Acceleration Calculation

10:49:46 Sidereal time at midnight Oct 29, 1955

+2:26:12

13:15:58

+1:39:32 \*\* \*\* Location calculation

14:55:30 Sidereal time

Acceleration Calculation:

GMT time into minutes  $10 \times 60 = 600$   $600+48= 648$

$9.86 \times 648 = 6389.28:60 = 106 = 1'46''$

\*\*Location calculation:

24° E multiplied by 4 and converted to hrs and mins is 1:36

53' multiplied by 4 and converted into mins and seconds is 3'32"

1:36:00

0:03:32

This time calculated is the same as the computer calculated sidereal time. For all the Virgos out there do note that the actual official coordinates for Helsinki Finland are 60°N 09' 09" and 24°E 57'04".

Sometimes dates can change let's take a birth at 1:15 am, January 07, 1992 in Helsinki.

12:48:00 Birth time

-02:00:00 Difference to GMT

10:48:00 GMT time

+ 1:46 \* Acceleration Calculation

10:49:46 Sidereal time at midnight Oct 29, 1955

+2:26:12

13:15:58

+1:39:32 \*\* \*\* Location calculation

14:55:30 Sidereal time

01:15:00 Birth time

24:00:00 Add 24 hr to facilitate calculation

25:15:00

- 02:00:00 Time zone 2 hours east of Greenwich.

23:15:00 NB: East of Greenwich deduct, West

+ 3:49 of Greenwich add!

23:18:49 GMT Time used for acceleration

+ 6:59:21 Sidereal time from Ephemeris - Jan.6!

30:18:10

+ 1:39:32 Time adjustment for Helsinki<sup>1</sup>

31:57:42 <sup>1</sup>. This would change when using 24°E 57'04' which is 1:39:48

- 24:00:00 Deduct 24 hrs

07:57:42 Sidereal time

So we learn that an incorrect longitude affects the sidereal time, which is used in the calculation of both planetary positions and houses. The sidereal time would be later with the correct latitude ie. 7:57:58. This difference moves the ASC and MC by 4' each. It is too small an error to shift the planets.

## CALCULATION OF HOUSES

For Patrick's chart. In the table of houses find the tables for 2:16:00 and 2:20:00 go down to lines for 43°E & 44°E of latitude. We calculated his sidereal time to 2:18:48

The Ascendant at 2:16 at 43rd parallel was 16 50.33  
at 44th parallel was 17 15.7

The Actual Ascendant is to be calculated for 2:18:48 which is 2'18" more (labeled excess time) than the earlier time.

The Ascendant at 2:20 at 43rd parallel was 17 36.23  
44th parallel 18 1.2

3) Calculate the difference of arc, which is the rate of increase between latitudes (17°36.2'- 16°50.3) = 46'. Determine the excess time. Actual sidereal time at birth 2:18:48, which is 2'48" in excess of 2:16:00. Turn to the tables of House Corrections for Exact Sidereal Time.

Find the excess time in the left side of the page, ie. 2'48"; go across to the column with heading 46'- the intersection will read 32. Add 32' to the 2:16:00 ascendant of 16 50.3 + 32' = 17 22.3.

The next step is to correct for latitude. In the tables exact latitudes in increments of 1° are used. Patrick's birth latitude is 43E39'. If he was born at the 44th parallel his ascendant would be 17 15.7 and a degree closer to the equator it would have been 16 50.3. The difference of arc is 25.4'. Find the Excess latitude ie. 39' in the left hand column; go to the intersection for the column headed 25' - read 16'. Add 16' to 17 22.3 and get the Ascendant for 17°Leo 38'.

This is a simple way to avoid logarithms and does give the same ascendant as the computer generated chart. (Note there is a slight variance between programs) The rest of the cusps should be calculated similarly.

This process is quite simple, quick and rather painless. We additionally learn that at these latitudes the Ascendant moves 46' every four minutes of time. If a person is off their correct birth time by let's say only 10 minutes, the ascendant is off by 460' = 7°40'. This causes much more havoc than loosing a minute in calculation.

The midheaven at 2:20 7°Taurus 21' 03"  
The midheaven at 2:16 6°Taurus 19' 23"  
The rate of move 1° 1' 40" a

Go to table of correction for exact sidereal time  
excess time is the same as above 2'48" b. The intersection of a) & b) shows 43'. This is added to the earlier midheaven

6° 19' 23"  
+ 43' 00"  
7° 02' 23"

Here we note that time makes a difference of approx. 1° every four minutes. The MC can therefore be in a different sign altogether in 30 minutes, and a lot of people only know that they were born between 2pm and 3pm!

The intermediate cusps are usually the trickiest. Let's look at the 2nd cusp.

2:16 2:18

43 13 Virgo 13.6 14 Virgo 5.3 Time change difference 51.7'

44 13 Virgo 31.0 14 Virgo 22.4

lat. change

17.4'

The intersection of 52' and 2'48" of excess time in the house corrections for exact sidereal time show 36'.

13 13.6

+ 36.0

13 49.6

The second step is to find the intersection (in House corrections for exact latitudes) for 17' in the shaded area of house cusp differences and vertical line of 39' of excess latitude. The correction required is 11'. Add this to 13 49.6 and we get 14°Virgo 0.6'. This is rounded off as 14°01' in the computer chart. We are sailing quite smoothly here.

The book I use is the AFA Tables of Houses by Astro Numeric Service, Koch System. (Their phone# 602-838 1751.) Their website on our links pages.

## **HOW TO CALCULATE THE POSITION OF PLANETS**

Next we get out the ephemeris to find out where the planets sit within these houses.

The Sun at 00:00 GMT on Aug 14 1991 was at 20°Leo 43'59"

00:00 GMT on Aug 15 1991 at 21°Leo 41'37"

The Sun progressed at the rate of 57'38" per day. Converted into seconds (3458") and divided by minutes in the day (1440), we learn that the Sun moved at a rate of 2.4" per minute. Simply multiply this by 10h 07m, as this is the time that had lapsed from GMT 00:00 to his birth. 607 (minutes) x 2.4" = 1456.8"; convert back to minutes and seconds 24'16" and add to the earlier midnight position

20°43' 59"

+ 24' 16"

21°08'15"

Computer calculation is 21°08'17 Leo.

The Moon is always trickier as it moves so rapidly.

Aug 14 12°Libra 38' midnight

Aug 14 19°Libra 19' noon

Aug 15 25°Libra 54' midnight

The motion of the moon is 6° 41' per 12 hours from midnight till noon. This averages 31" per minute. The motion from noon till midnight is 6°35'. The mean motion is 32.9". Mean motion over a 24h period is 33" per minute. Patrick was born 10h 07 min after midnight or 1h 53 min prior to noon. As the motion is somewhat irregular it is advisable to work with the shortest distance.

$113 \times 31" = 3503"$ ; ie. 58'23"

19° 19'00" 19°19'00"

- 58'23" \* - 60'16" \*\*

18° 20'37" 18°18'44"

Using the \*) 31" motion we arrive at 18°Libra 20' for the Moon. Using the average mean motion of \*\*) 32" we arrive at 18°Libra 18'. The actual computer calculated position is 18°17' 03 Libra; but with the Moon this hand-calculation gets us to the right degree.

When calculating planets it is easy to notice that knowing an approximate time of birth can make a significant difference to the Moon's position. The Moon moves faster in the Autumn and Winter than during Spring and Summer.

Computer generated charts are very common these days but a hand-calculated can be just as accurate. A variation of less than a minute is quite insignificant in my opinion.

Let's take Venus and calculate its position

Aug 14 4° Virgo 16.7'

Aug 15 3° Virgo 43.7'

The fact that the degree is smaller alerts us to look at the top of the column to find the R representing retrograde motion. Venus is retrograde once every 18 months or so for approx. 40 days.

In the 24 hour period Venus has moved backwards by 33'. This is 1.375" per minute of time. Multiply that by the same 607' that had passed since midnight and we arrive at 13.9'. We deduct that from 4°16.7 and get the result 4°02.9'. 4°Virgo 03'R. We are off by +/- 40" from the computer calculated position. (I personally wouldn't know what to do or say of that minute's significance.) [Click here to view the computer generated chart for Patrick.](#)

Calculating a chart by hand can be time consuming; yet most astrologers claim that it does give you a stronger feel for what the planets do. I actually know one who does not even trust the computer calculated ones.

PATRICK  
TORONTO, ONT  
Time Zone: 5 hours West

August 14, 1991  
43 N 39 79 W 23  
Tropical Koch  
NATAL CHART

6:07 AM  
Daylight Savings Time  
Geocentric

