Mendoza y Rios Method from 1801.

3. Add together the two apparent altitudes.

4. Find the auxiliary angle by Table IX and Table X; and take the ſum and the difference between it and the ſum of the apparent altitudes, as well as between the ſame auxiliary angle and the apparent diſtance. And apply the reſult of the corrections of the apparent altitudes for refraction and parallax to the ſum of the apparent altitudes, in order to obtain the ſum of the true altitudes.

5. Take (Table XII) the verſed-ſines of the above ſums and differences, and the ſuverſed-ſine of the ſum of the true altitudes; and the ſum (rejecting 4 from the firſt figure) will be the verſed-ſine of the true diſtance from the moon to the ſun or ſtar.

	Apparent diſtance - - - - -		63 . 9 . 9		
	Obſerved alt. of ⊙ 's lower limb	13°. 23′. 20″	- ☾ 's upper limb . .		68°. 59′. 25′
	Dip - - - - - —	3 . 41	- - - - - —		3 . 41
	Apparent altitude	13 . 19 . 39	- - - -		68 . 55 . 44
	Semidiameter - - - +	15 . 47	- (in altitude) - —		15 . 15
			Refract. and Parallax		
	Apparent altitude of center -	13 . 35 . 26	— 3′. 46″ + 0′. 2″		68 . 40 . 29
			19 . 38		
			3		
	Sum of apparent altitudes -	82 . 15 . 55	(+15 . 57)	19 . 43	
28′. 27″	Apparent diſtance - -	63 . 9 . 9			
+ 4	Auxiliary angle - -	60 . 28 . 33			
+ 2					
	Firſt ſum - - -	142 . 44 . 28	V. ſine - -	179.5885	
				24	
	Firſt difference - - -	21 . 47 . 22	V. ſine - -	007.1442	
				4	
	Second ſum - - -	123 . 37 . 42	V. ſine - -	155.3795	
				8	
	Second difference - -	2 . 40 . 36	V. ſine - -	000.1090	
				1	
	Sum of true altitudes -	82 . 31 . 52	Suv. ſine -	112.9949	
				38	
	True diſtance - - -	63 . 23 . 59	V. ſine (ſum — 4)	55.2236	
				198	
				38	

Mendoza y Rios Method from 1809 (second edition).

4. Add together the two apparent altitudes.

5. Take out of Table VII. the complementary correction anſwering to the apparent altitude of the Sun or Star; and out of Table VIII. the correction of the Moon's apparent altitude, according to the minutes of horizontal parallax, and the proportional parts for ſeconds; which add together with the ſum of apparent altitudes, and you will have the corrected ſum of altitudes.

At the time of taking the correction of Table VIII. take likewiſe the Auxiliary Argument out of Table IX. which will be found in the oppoſite page.

6. Take out of Table X. Number I. anſwering to the ſum of apparent altitudes and to the minutes of auxiliary argument, and alſo the parts for the ſeconds of this argument; Number II. (which will be found, on turning one or two leaves from the opening of the book for Number I.) anſwering to the ſum of corrected altitudes, and the parts for ſeconds; and Number III. anſwering to the degrees and minutes of apparent diſtance (reſerving the ſeconds) and the minutes of auxiliary argument, and alſo the parts for the ſeconds of this argument. Leave the book open at that place. Add together the three numbers and parts for ſeconds; and look in that opening of the book, or in the contiguous pages, for the corrected diſtance anſwering to the ſum, in Numbers IV. which, with the addition of the reſerved ſeconds, will be the true diſtance from the Moon to the Sun or Star.†

* It will be proper to obſerve, within a very ſhort time, ſeveral diſtances, as well as ſeveral altitudes, in order to uſe the mean of each ſet, as well as that of the correſponding times by the watch.

† Remark, that as Numbers I. and II. as well as Numbers III. and IV. are found at the ſame openings, or near the ſame openings of the book, and as the auxiliary argument and the correction of the Moon's altitude are found at the ſame time, four ſearchings into the book are, in this method, ſufficient for the whole calculation of the true diſtance, including what relates to the correction of the altitudes, on account of refraction and parallax.

	App. alt. ⊙	41°. 45′			
	App. alt. ☽	27. 0 (hor. parall. 54′. 24″)			
Aux. Arg.	Sum of app. alt.	68. 45	N. I.		39938
13′. 14″	Compl. corr. ⊙'s alt.	+ 59. 4″			72
+ 6	Correct. ☽'s alt.	+ 46. 15			
+ 3	Prop. part	+ 21			
13. 23	Corrected ſum of alt.	70. 30. 40	N. II.		49935
	App. diſtance	97. 29	N. III.		91 29318
	Reſerved ſec.	36			41
	Corr. diſtance	96. 51. 26	N. IV.	(ſum)	19394
	True diſtance	96. 52. 2			