

PRÁCTICO VII

$$(3) i_{\text{observada}} = 25^{\circ},17$$

$$(1) r = a(1 - e \cdot \cos E) = 2,2518 \text{ ua}$$

$$M = 1,3569 \text{ rads}$$

$$\text{ITERANDO } E_{n+1} = M + e \cdot \sin E_n \Rightarrow E = 1,46126 \text{ rads}$$

VIERNES 29
PARCIAL
PRÁCTICOS 6, 7, 8

LUNES 18
8:30
SALON 109

↓
TRABAJO

PRÁCTICO VII

$$(3) i_{\text{enclava}} = 25^{\circ},17$$

$$(1) r = a(1 - e \cdot \cos E) = 2,2518 \text{ ua}$$

$$M = 1,3569 \text{ rads}$$

$$\text{ITERANDO } E_{\text{int}} = M + e \cdot \sin E_{\text{int}} \Rightarrow E = 1,46126 \text{ rads}$$

OTRA:

$$\theta \approx M + 2e \sin M + \frac{5}{4} e^2 \sin 2M + \dots$$

VIERNES 29
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SALON 109

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TRABAJO

PRÁCTICO VII

(3) $i_{\text{curvatura}} = 25^{\circ},17$

(1) $r = a(1 - e \cos E) = 2,2518 \text{ ua}$

$M = 1,3569 \text{ rads}$

ITERANDO $E_{n+1} = M + e \cos E_n \Rightarrow E = 1,46126 \text{ rads}$

OTRA:

$$\theta \approx M + 2e \cos M + \frac{5}{4} e^2 \cos 2M + \dots$$

$$M = \sqrt{\frac{\mu}{a^3}} = \frac{k}{a^{3/2}}$$

ua
Ho
Día

$M = m \cdot \Delta t$
↑
Días
 271,2361 días

VIERNES 29
 PARCIAL
 PRÁCTICOS 6, 7, 8

LUNES 18
 8:30
 SALON 109
 ↓
 TRABAJO

PRÁCTICO VII

(3) $i_{\text{observada}} = 25^{\circ},17$

(1) $r = a(1 - e \cos E) = 2,2518 \text{ ua}$

$M = 1,3569 \text{ rads}$

ITERANDO $E_{\text{next}} = M + e \sin E_n \Rightarrow E = 1,46126 \text{ rads}$

OTRA:

$$\theta \approx M + 2e \sin M + \frac{5}{4} e^2 \sin 2M + \dots$$

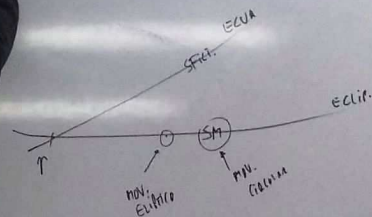
$M = \sqrt{\frac{\mu}{a^3}} = \frac{k}{a^{3/2}}$

ua
Ho
dia



☉ y Sol neg

$M = m \cdot \frac{\Delta t}{\text{Días}}$ $\nearrow 271,2361 \text{ días}$



VIERNES 29
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SALON 109

TRABAJO

PRÁCTICO VII

(3) $i_{\text{observada}} = 25^{\circ},17$

(1) $r = a(1 - e \cos E) = 2,2518 \text{ ua}$

$M = 1,3569 \text{ rads}$

ITERANDO $E_{n+1} = M + e \cos E_n \Rightarrow E = 1,46126 \text{ rads}$

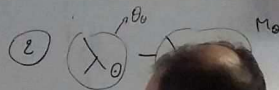
OTRA:

$$\theta \approx M + 2e \sin M + \frac{5}{4} e^2 \sin 2M + \dots$$

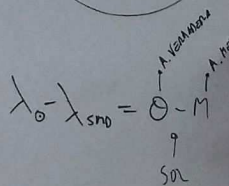
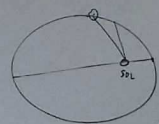
$$M = \sqrt{\frac{\mu}{a^3}} = \frac{k}{a^{3/2}}$$

ua
Ho
Día

$M = m \cdot \frac{\Delta t}{\text{Días}}$ $\rightarrow 271,2361 \text{ días}$



Y SOL NEG. DIURNAL EN PERIHELIO



Eclit.

VIERNES 29
PARCIAL
PRÁCTICOS 6, 7, 8

LUNES 18
8:30
SALON 109

TRABAJO

PRÁCTICO VII

(3) i aparente = 25°,17

(1) $r = a(1 - e \cos E) = 2,2518 \text{ ua}$

$M = 1,3569 \text{ rads}$

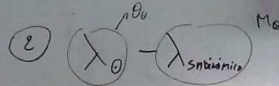
ITERANDO $E_{n+1} = M + e \cos E_n \Rightarrow E = 1,46126 \text{ rads}$

OTRA:

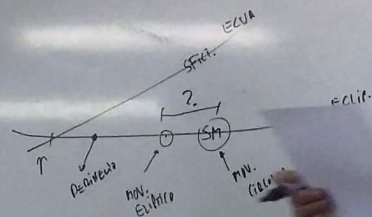
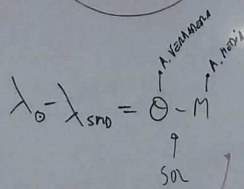
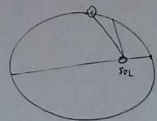
$$\theta \approx M + 2e \sin M + \frac{5}{4} e^2 \sin 2M + \dots$$

$$M = \sqrt{\frac{\mu}{a^3}} = \frac{k}{a^{3/2}}$$

UA
Ho
Da



Y SOL NEGRO DIFERENCIA COINCIDEN EN PERIHELIO



$$\lambda_0 - \lambda_{SOL} = 2e \sin M + \frac{5}{4} e^2 \sin 2M + \dots$$

ES 29
CIAL
S 6,7,8

PRÁCTICO VII

(3) $i_{\text{observada}} = 25^{\circ},17$

(1) $r = a(1 - e \cos E) = 2,2518 \text{ ua}$

$M = 1,3569 \text{ rads}$

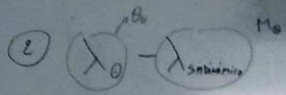
ITERANDO $E_{m+1} = M + e \cos E_m \Rightarrow E = 1,46126 \text{ rads}$

OTRA:

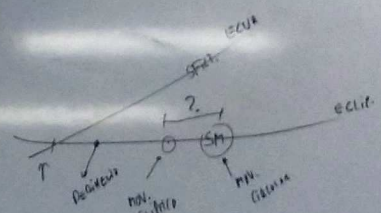
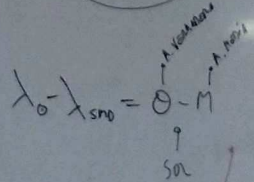
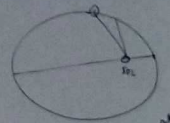
$$\theta \approx M + 2e \cos M + \frac{5}{4} e^2 \cos 2M + \dots$$

$M = \sqrt{\frac{\mu}{a^3}} = \frac{k}{a^{3/2}}$

$M = m \cdot \Delta t$
 \uparrow días
 271,2361 días



☉ y Sol más cercano (COINCIDEN EN PERIHELIO)



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 TRABAJO

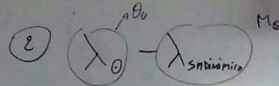
$e = 0,07$

$\lambda_0 - \lambda_{\text{sol}} = 2e \cos M + \frac{5}{4} e^2 \cos 2M < 2e + \frac{5}{4} e^2 \text{ rads}$
 $\sim 0,034 \text{ rad} \sim 1,96$

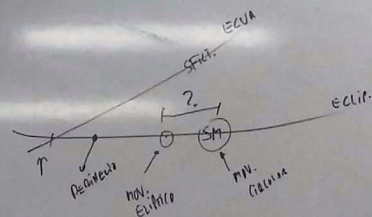
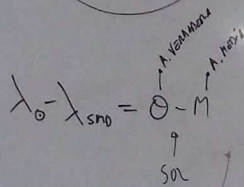
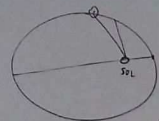
PRÁCTICO VII

6 $a = 1,5236 \text{ ua}$

$M = \sqrt{\frac{k}{a^3}} = \frac{k}{a^{3/2}}$ ua Ho dia



☉ y SOL MED. DIARIO COINCIDEN EN PERIHELIO



VIERNES 29
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SALON 109

TRABAJO

$e = 0.017$

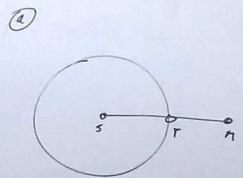
$\lambda_0 - \lambda_{SMD} = 2e \sin M + \frac{5}{4} e^2 \sin 2M < 2e + \frac{5}{4} e^2 \text{ RADOS}$

$\sim 0.034 \text{ RADOS} \sim 1.96$

PRÁCTICO VII

① $a = 1,5236 \text{ ua}$

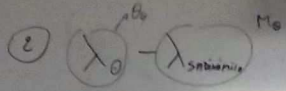
$M = \sqrt{\frac{k}{a^3}} = \frac{k}{a^{3/2}}$



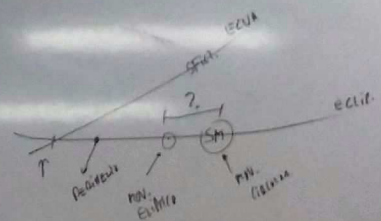
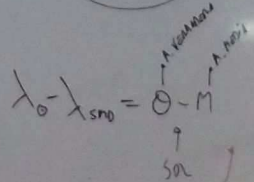
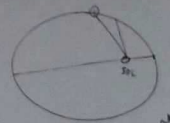
$\frac{1}{S_{\text{inclinada}}} = \frac{1}{T_M} - \frac{1}{T_T}$

$T^2 = a^3 \rightarrow T = a^{3/2}$

$\frac{1}{S} = a^{-3/2} - 1$



○ y Sol por el mismo plano (coinciden en perihelio)



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PARCIAL
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TRABAJO

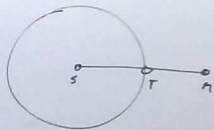
$e = 0.017$

$\lambda_0 - \lambda_{180} = 2e \sin M + \frac{5}{4} e^2 \sin 2M < 2e + \frac{5}{4} e^2 \sin 2M$
 $\sim 0.034 \text{ ua} \sim 4.96$

PRÁCTICA VII

⑥ $a = 1,5236 \text{ ua}$

⑦



$$\frac{1}{\sin \theta} = \frac{1}{T_M}$$



$$\frac{1}{S} = a^{-3/2} - 1$$

$$M = \sqrt{\frac{k}{a^3}} = \frac{k}{a^{3/2}}$$

ua
Mo
bin

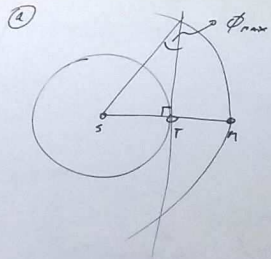
VIERNES 29
PARCIAL
PRÁCTICAS 6, 7, 8

LUNES 18
8:30
SALON 109

↓
TRABAJO

PRÁCTICO VII

① $a = 1,5236 \text{ ua}$



$$\frac{1}{S_{\text{inclinada}}} = \frac{1}{T_M} - \frac{1}{T_T} \quad \text{1 año}$$

$$T^2 = a^3 \rightarrow T = a^{3/2}$$

↑ años ↑ ua

$$\frac{1}{S} = a^{-3/2} - 1 \Rightarrow S = 2,136 \text{ años}$$

$$M = \sqrt{\frac{k}{a^3}} = \frac{k}{a^{3/2}}$$

0,20
0,20

B = CTE

VIERNES 29
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PRÁCTICOS 6, 7, 8

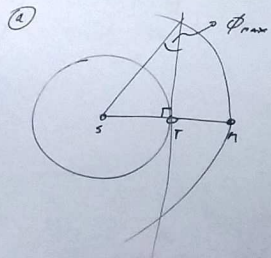
LUNES 18
8:30
SALÓN 109

↓
TRAMASE



PRÁCTICO VII

① $a = 1,5236 \text{ ua}$



$$\frac{1}{S \text{ años}} = \frac{1}{T_M} - \frac{1}{T_T} \quad 1 \text{ año}$$

$$T^2 = a^3 \Rightarrow T = a^{3/2}$$

$$\frac{1}{S} = a^{-3/2} - 1 \Rightarrow S = 2,136 \text{ años}$$

$$M = \sqrt{\frac{k}{a^3}} = \frac{k}{a^{3/2}}$$

0.23

$$B = \frac{CTE \cdot (1 + e \cos \phi)}{r^2 \cdot p^2}$$

r^2 → dist. helioc.
 p^2 → dist. geoc.

obliv.

$B_{max} \rightarrow$ oposición

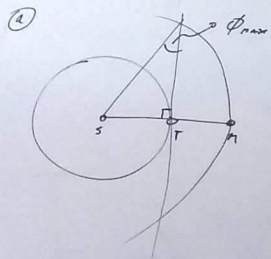
VIERNES 29
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PRÁCTICOS 6, 7, 8

LUNES 18
8:30
SALÓN 104

TRABAJO

PRÁCTICA VII

⑥ $a = 1,5236 \text{ ua}$



$$\frac{1}{S \text{ (años)}} = \frac{1}{T_M} - \frac{1}{T_T} \quad \text{1 año}$$

$$T^2 = a^3 \Rightarrow T = a^{3/2}$$

$$\frac{1}{S} = a^{-3/2} - 1 \Rightarrow S = 2,136 \text{ años}$$

$$M = \sqrt{\frac{k}{a^3}} = \frac{k}{a^{3/2}}$$

de
S

$$B = \frac{\text{CTE} \cdot (1 + e \cos \phi)}{r^2 \cdot p^2}$$

Dist. Mercurio

Dist. Saturno

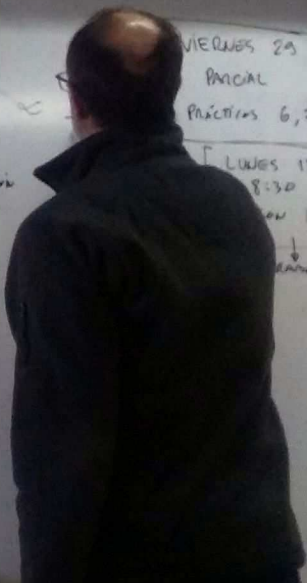
abrir $\phi = 0$

Bmax \rightarrow oposición

Bmin \rightarrow conjunción

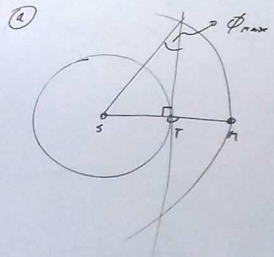
VIERNES 29
PARCIAL
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LUNES 18
8:30
10:00
↓
CARRASO



PRÁCTICO VII

① $a = 1,5236 \text{ ua}$



$$\frac{1}{S \sin \phi} = \frac{1}{T_M} - \frac{1}{T_T} \quad \text{1 año}$$

$$T^2 = a^3 \Rightarrow T = a^{3/2}$$

$$\frac{1}{S} = a^{-3/2} - 1 \Rightarrow S = 2,136 \text{ años}$$

$$M = \sqrt{\frac{k}{a^3}} = \frac{k}{a^{3/2}}$$

UA
Ho
dia

$$B = \text{cte} \cdot \frac{(1 + e \cos \phi)^2}{r^2}$$

Dist.
Helios

Dist.
Geoc.

oposic.

$\phi = 0$

$$\frac{B_{\max}}{B_{\min}} = \left(\frac{1+e}{1-e} \right)^2$$

$m = 4$

$$\text{lim} \approx \frac{2}{(a-1)^2}$$

$$\approx \frac{2}{(a+1)^2}$$

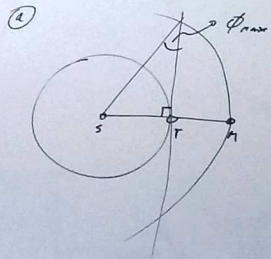
VIERNES 29
PARCIAL
PRÁCTICOS 6, 7, 8

LUNES 18
8:30
SALON 109

TRABAJO

PRÁCTICO VII

① $a = 1,5236 \text{ ua}$



$$\frac{1}{S \sin \phi_{\max}} = \frac{1}{T_M} - \frac{1}{T_T}$$

$$T^2 = a^3 \Rightarrow T = a^{3/2}$$

$$\frac{1}{S} = a^{-3/2} - 1 \Rightarrow S = 2,136 \text{ años}$$

$$M = \sqrt{\frac{k}{a^3}} = \frac{k}{a^{3/2}}$$

DA
P
B

$$B = \frac{CTE \cdot (1 + e \cos \phi)}{r^2} \cdot p^2$$

$\phi = 0$
 dist. helio
 dist. per.

$$B_{\max} \rightarrow \text{oposición} \propto \frac{2}{(a-1)^2}$$

$$B_{\min} \rightarrow \text{conjunción} \propto \frac{2}{(a+1)^2}$$

$$\frac{B_{\max}}{B_{\min}} = \left[\frac{(a+1)}{(a-1)} \right]^2 = 23,5$$

$$m = 4 - 2,5 \log B$$

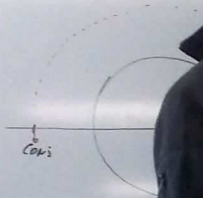
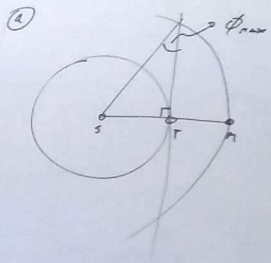
$$M_{\max} - M_{\min} = -2,5 \log \frac{B_{\max}}{B_{\min}}$$

VIERNES 29
PARCIAL
PRÁCTICOS 6, 7, 8

LUNES 18
8:30
SALÓN 10º
↓
TRABAJO

PRÁCTICO VII

6 $a = 1,5236 \text{ ua}$



$$B = \frac{\text{CTE} \cdot (1 + e \cos \phi)}{r^2 \cdot p^2}$$

\swarrow dist. Helios \swarrow dist. Gal.

oposic. $\phi = 0$

$B_{\text{max}} \Rightarrow \text{oposición} \propto \frac{2}{(a-1)^2}$

$B_{\text{min}} \Rightarrow \text{conjunción} \propto \frac{2}{(a+1)^2}$

$$\frac{B_{\text{max}}}{B_{\text{min}}} = \left[\frac{(a+1)}{(a-1)} \right]^2 = 23,5$$

$m = 4 - 2,5 \log B$

$m_{\text{max}} - m_{\text{min}} = -2,5 \log \frac{B_{\text{max}}}{B_{\text{min}}}$

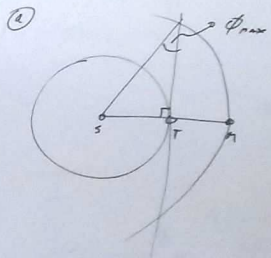
VIERNES 29
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TRABAJO

PRÁCTICO VII

6 $a = 1,5236 \text{ ua}$

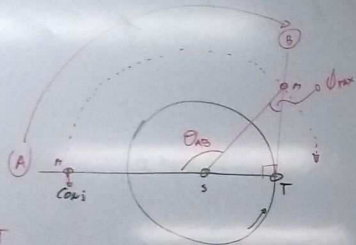


$$\dot{\theta} = \frac{2\pi}{S}$$

$$S \rightarrow 2\pi$$

$$\theta_{\text{ap}} \rightarrow x$$

d



$$B = \frac{\text{CTE} \cdot (1 + a \phi)}{r^2 \cdot p^2}$$

\downarrow DIST. HELIOS $\quad \downarrow$ DIST. GAL.

oposic. $\phi = 0$

$$B_{\text{max}} \Rightarrow \text{oposición} \propto \frac{2}{(a-1)^2}$$

$$B_{\text{min}} \Rightarrow \text{conjunción} \propto \frac{2}{(a+1)^2}$$

$$\frac{B_{\text{max}}}{B_{\text{min}}} = \left[\frac{(a+1)}{(a-1)} \right]^2 = 23,5$$

$$m = \phi - 2,5 \log B$$

$$m_{\text{max}} - m_{\text{min}} = -2,5 \log \frac{B_{\text{max}}}{B_{\text{min}}}$$

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PRÁCTICOS 6, 7, 8

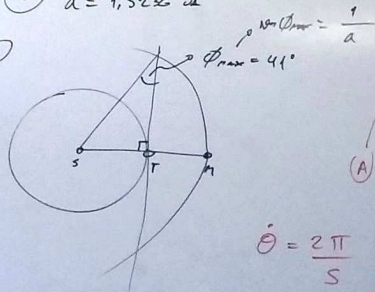
LUNES 18
8:30
SALON 104

TRABAJO

PRÁCTICO VII

6) $a = 1,5236 \text{ ua}$

7)

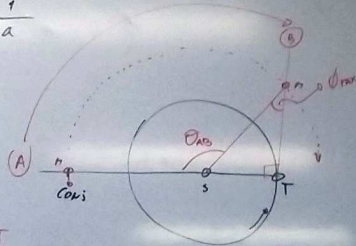


$$\dot{\theta} = \frac{2\pi}{S}$$

$$S \rightarrow 2\pi$$

$$\theta_{AD} \rightarrow x$$

d)



$$B = \frac{CTE \cdot (1 + e \cos \phi)}{r^2}$$

r^2 → dist. helioc.
 ϕ → ang. sol.

$$B_{max} \rightarrow \text{afélica} \propto \frac{2}{(a-1)^2}$$

$$B_{min} \rightarrow \text{perihélica} \propto \frac{2}{(a+1)^2}$$

$$\frac{B_{max}}{B_{min}} = \left[\frac{(a+1)}{(a-1)} \right]^2 = 23,5$$

$$m = 4 - 2,5 \log B$$

$$M_{max} - M_{min} = -2,5 \log \frac{B_{max}}{B_{min}}$$

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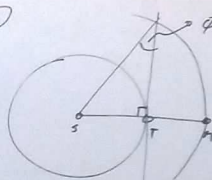
LUNES 18
8:30
SALÓN 109
↓
TRABAJO

PRÁCTICO VII

6 $a = 1,5236 \text{ ua}$

$v_{max} = \frac{1}{a}$

7 $\phi_{max} = 41^\circ$

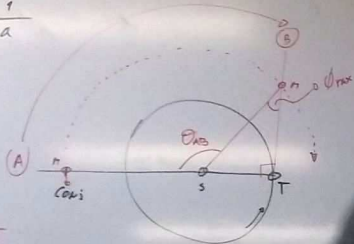


$\dot{\theta} = \frac{2\pi}{S}$

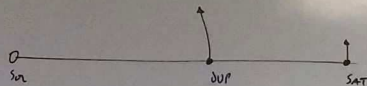
$S \rightarrow 2\pi$

$\theta_{AP} \rightarrow x$

8



9



$$\frac{1}{S} = \frac{1}{T_{SOL}} - \frac{1}{T_{JUP}}$$

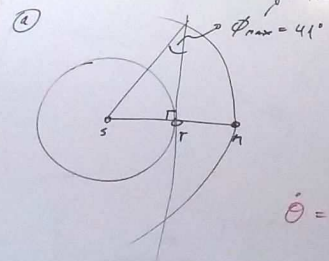
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PARCIAL
PRÁCTICOS 6, 7, 8

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8:30
SALON 109

TRABAJO

PRÁCTICO VII

6) $a = 1,5236 \text{ ua}$

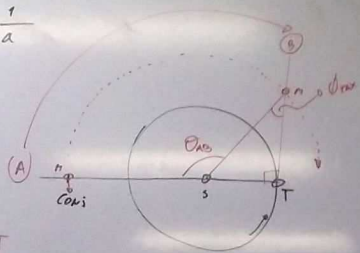


$$\dot{\theta} = \frac{2\pi}{S}$$

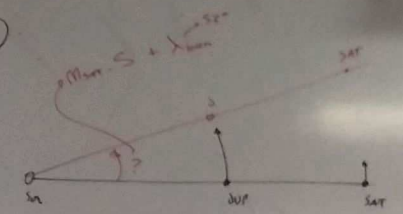
$$S \rightarrow 2\pi$$

$$\theta_{AP} \rightarrow x$$

d)



10)



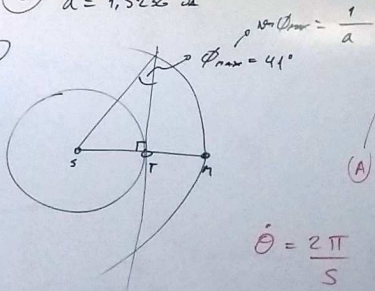
$$\frac{1}{S} = \frac{1}{T_{S_{\text{JUP}}}} - \frac{1}{T_{\text{JUP}}} = \lambda_{\text{SAT}}^{-1/2} - \lambda_{\text{JUP}}^{-1/2} = 10$$

29
6, 7, 8
18

PRÁCTICO VII

6 $a = 1,5236 \text{ ua}$

7

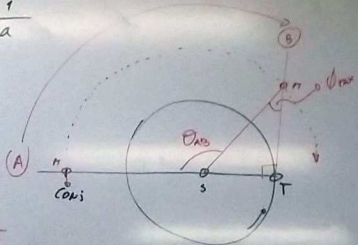


$$\dot{\theta} = \frac{2\pi}{S}$$

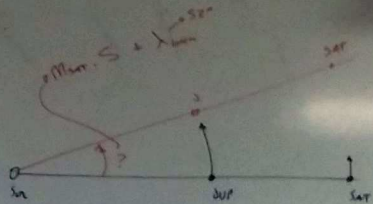
$$S \rightarrow 2\pi$$

$$\theta_{AB} \rightarrow X$$

d



10



$$\frac{1}{S} = \frac{1}{T_{JUP}} - \frac{1}{T_{SAT}} = a_{SAT}^{-3/2} - a_{JUP}^{-3/2} = 19,76 \text{ años}$$

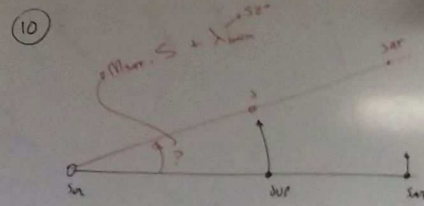
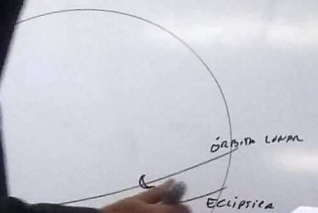
$$X_{HELIOC PRZY ALIUMBIN} = 52^\circ + X$$

$$\begin{aligned} \text{SAT: } 360^\circ &\rightarrow a_{SAT} \text{ años } (29,65 \text{ años}) \\ X &\rightarrow 19,76 \text{ años} \end{aligned}$$

VIERNES 29
PRINCIPAL
PRÁCTICOS 6, 7, 8

LUNES 18
8:30
SALON 109

TRAMITE



$$\frac{1}{S} = \frac{1}{T_{Sun}} - \frac{1}{T_{JUP}} = a_{Sat}^{-2/2} - a_{JUP}^{-2/2} = 10,76 \text{ años}$$

$$X_{helio} \text{ prox Alinencia} = 52^\circ + X$$

$$\begin{aligned} \text{SAT: } 360^\circ &\rightarrow a_{Sat} \text{ años } (29,65 \text{ años}) \\ X &\rightarrow 10,76 \text{ años} \end{aligned}$$

VIERNES 29
 PARCIAL
 PRÁCTICAS 6, 7, 8

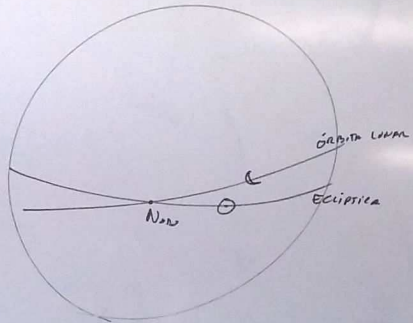
LUNES 18
 8:30
 SALÓN 10º

↓
 TEMA 8

SAROS

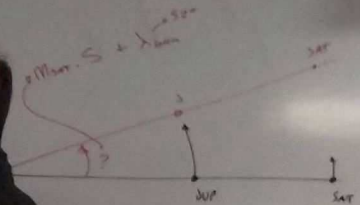
SOL - Júpiter : 346,62 años

LUNA - SOL : 29,5306 años



$$\frac{1}{\text{Mes sideral Sol}} = \frac{1}{\text{Mes sideral Júpiter}}$$

(10)



$$\frac{1}{T_{Sol}} - \frac{1}{T_{Júp}} = a_{Sat}^{-1/2} - a_{Júp}^{-1/2} = 10,76 \text{ años}$$

ALTERNAN = 52° + X

SAT : 360° → a_{SAT} AÑOS (29,65 años)

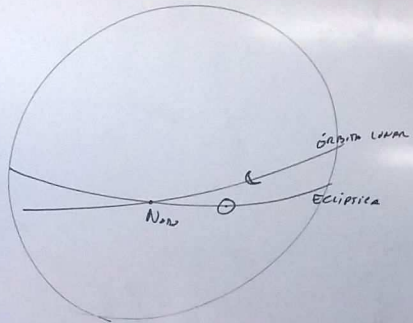
X → 10,76 años

VIERNES 29
PARCIAL
PRÁCTICAS 6, 7, 8

LUNES 18
8:30
SALÓN 109

TRABAJO

SAROS



SOL - TIERRA : 365,25 días

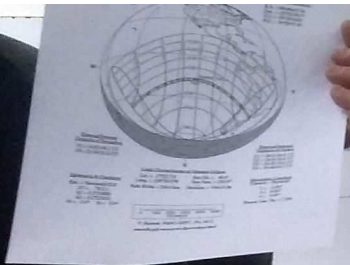
LUNA - SOL : 29,5306 días

$$\frac{1}{\text{MES sideral}} = \frac{1}{\text{MES sideral}} - \frac{1}{\text{AÑO}}$$

$$\frac{1}{\text{MES sideral}} = \frac{1}{27,32} - \frac{1}{365,242}$$

VIERNES 29
PRINCIPAL
PRÁCTICAS 6, 7, 8

LUNES 18
8:30
SALÓN 104
↓
TRAMITE



346,62 días

29,5306 días

CALCULOS

$346.62 \times 19 = 6585.8 \text{ días}$

$29.5306 \times 223 = 6585.3 \text{ días}$

= 18 años y 11 días

$$\frac{1}{\text{Mes sideral}} = \frac{1}{\text{Mes sideral}} - \frac{1}{\text{AÑO}}$$

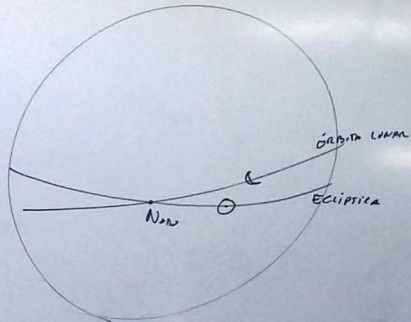
$$\frac{1}{\text{MES sidus}} = \frac{1}{27.32} - \frac{1}{365.242}$$

VIERNES 29
PARCIAL
Prácticas 6, 7, 8

LUNES 19
8:30
SALON 109

↓
TRABAJO

SAROS



SOL - LUNA : 346,62 días

LUNA - SOL : 29,5306 días

$$\frac{1}{\text{Mes sideral Sol}} = \frac{1}{\text{Mes sideral Luna}} - \frac{1}{\text{Año}} \\ \frac{1}{\text{MES SAROS}} = \frac{1}{27,32} - \frac{1}{365,242}$$

CALCULOS

$346,62 \times 19 = 6585,8 \text{ días}$

$29,5306 \times 223 = 6585,3 \text{ días}$

= 18 años y 11 días

VIERNES 29
PARCIAL
Prácticas 6, 7, 8

LUNES 18
8:30
SALON 109
↓
TRAMADO