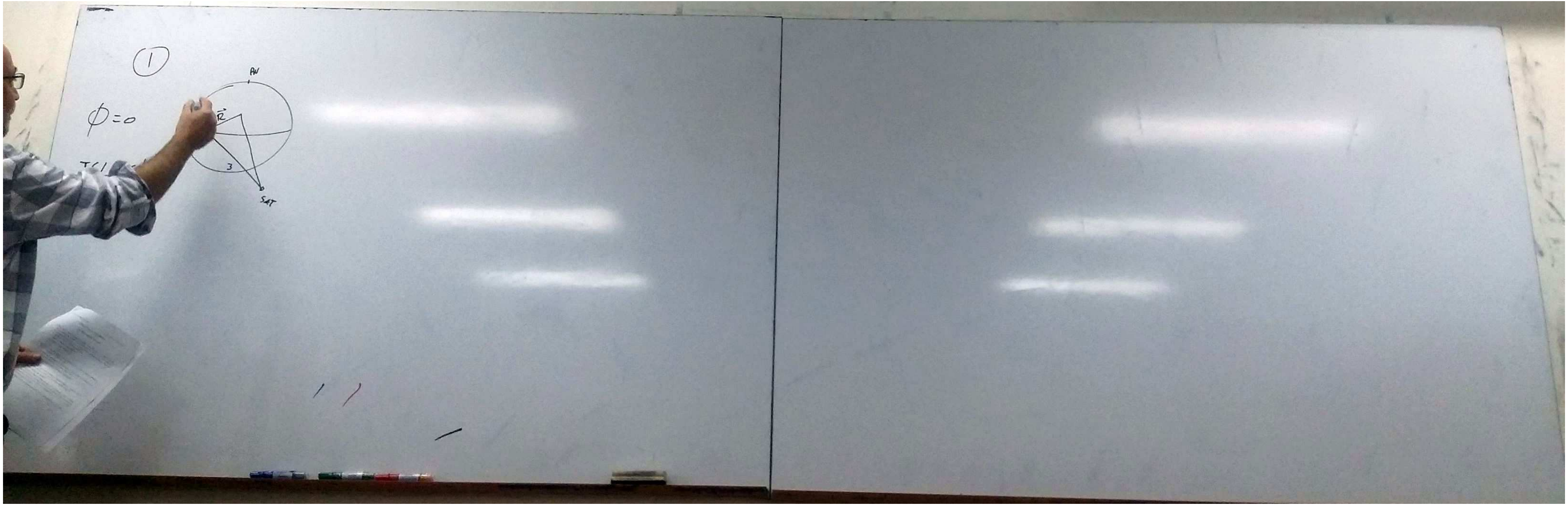
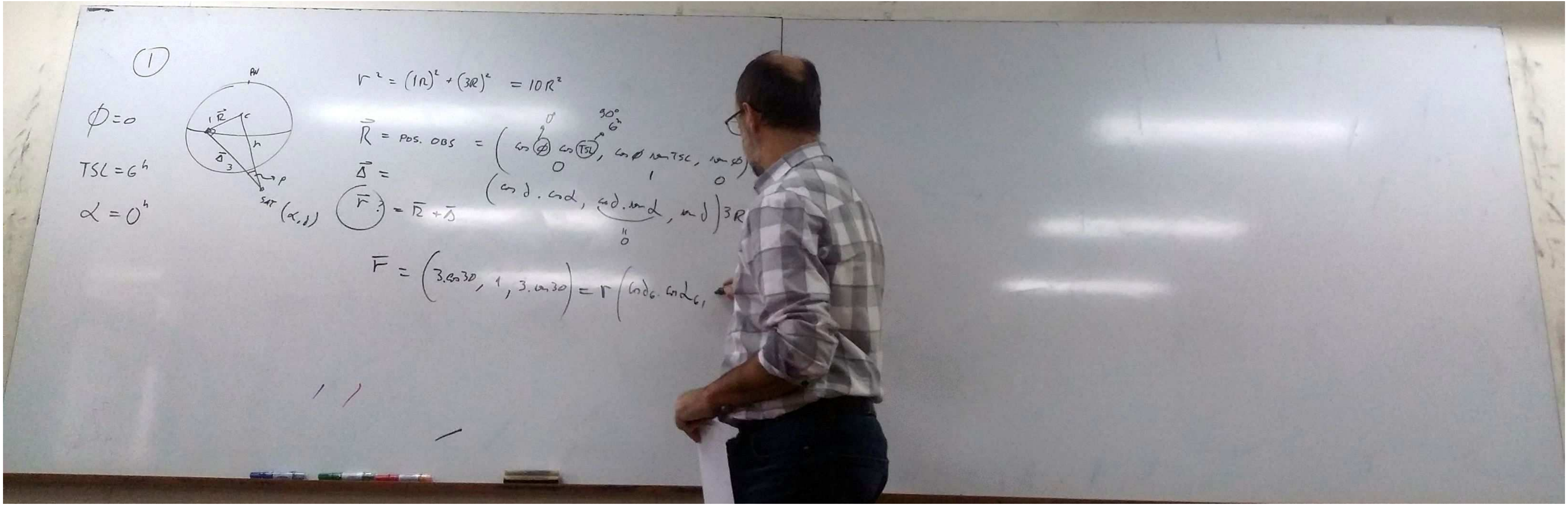
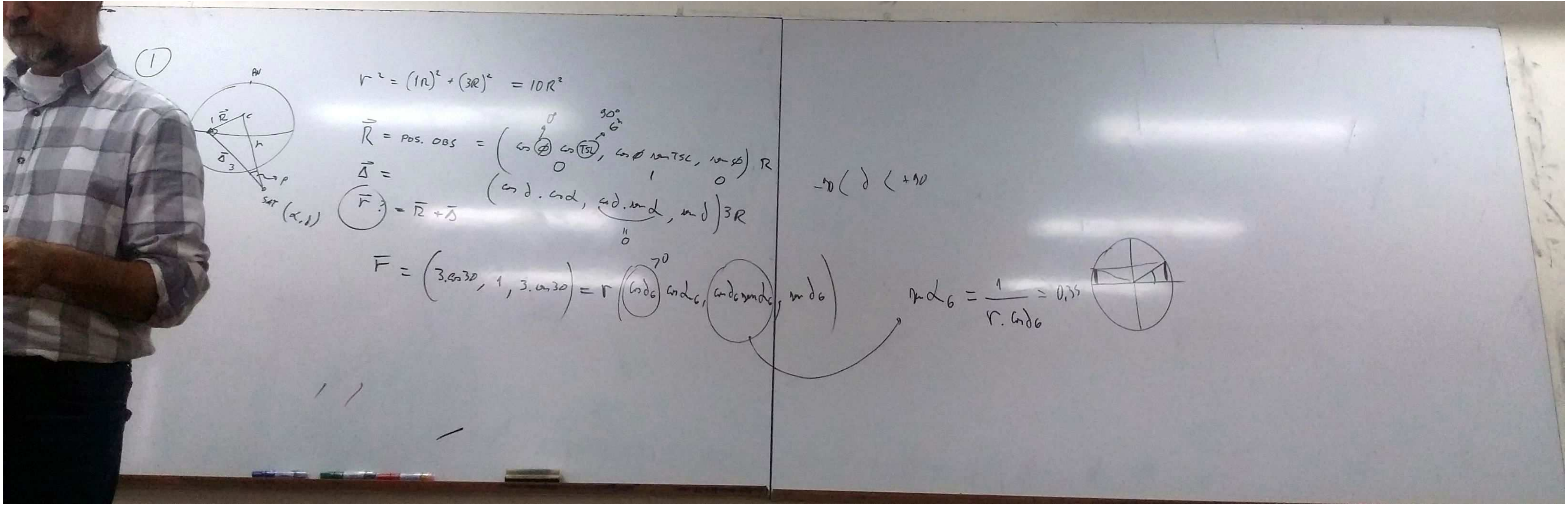
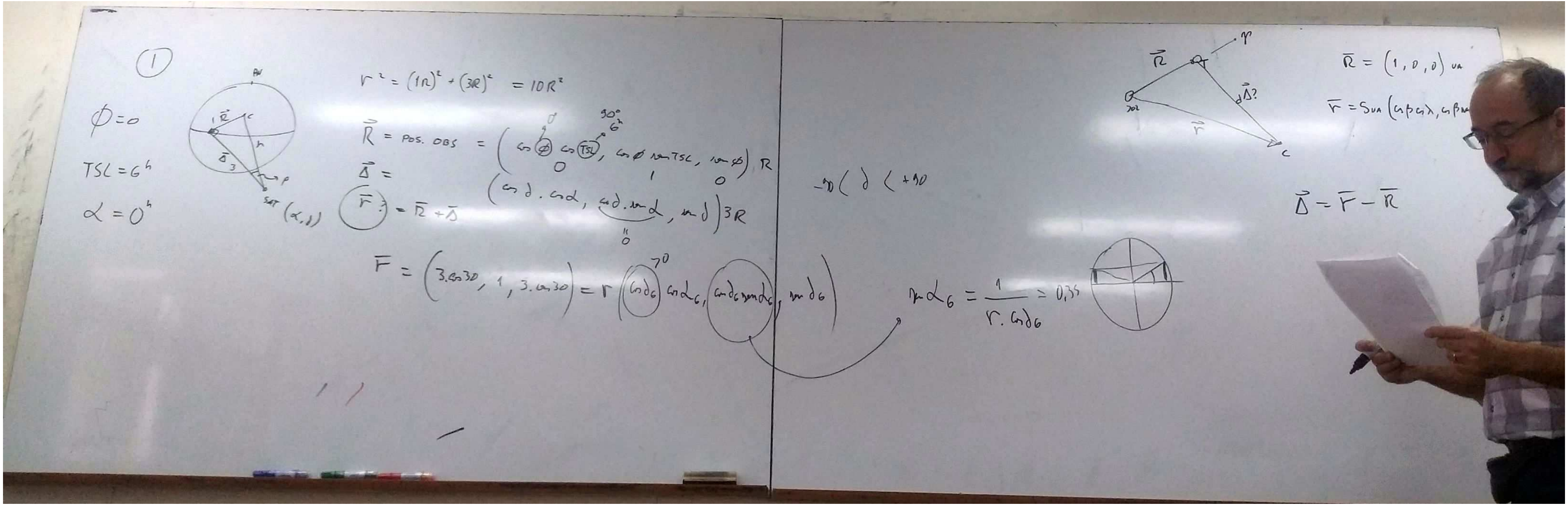
Astronomia Fundamental 2018 - clase 15



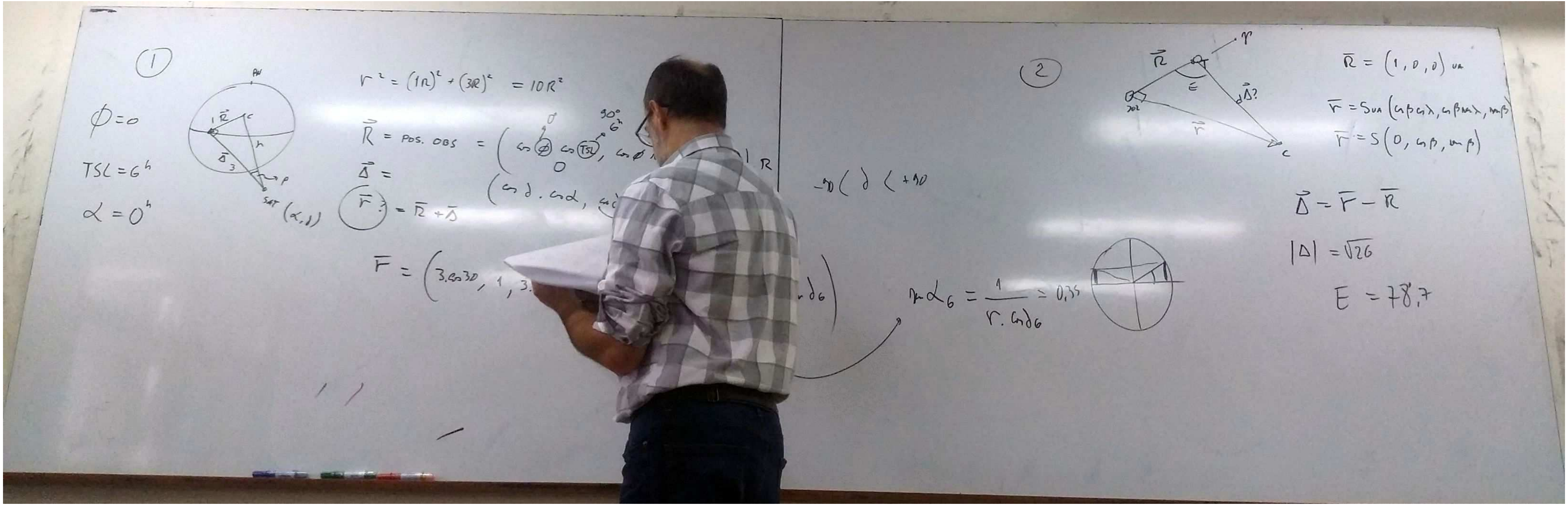

1
φ=0
TSL = 6h
α = 0h
SAT (α, δ)
r² = (1R)² + (3R)² = 10R²
R = POS. OBS
Δ =
r = R + Δ
30°
6h
0
1
0
F = (3.cos30, 1, 3.cos30) = r (cosδG. cosαG,

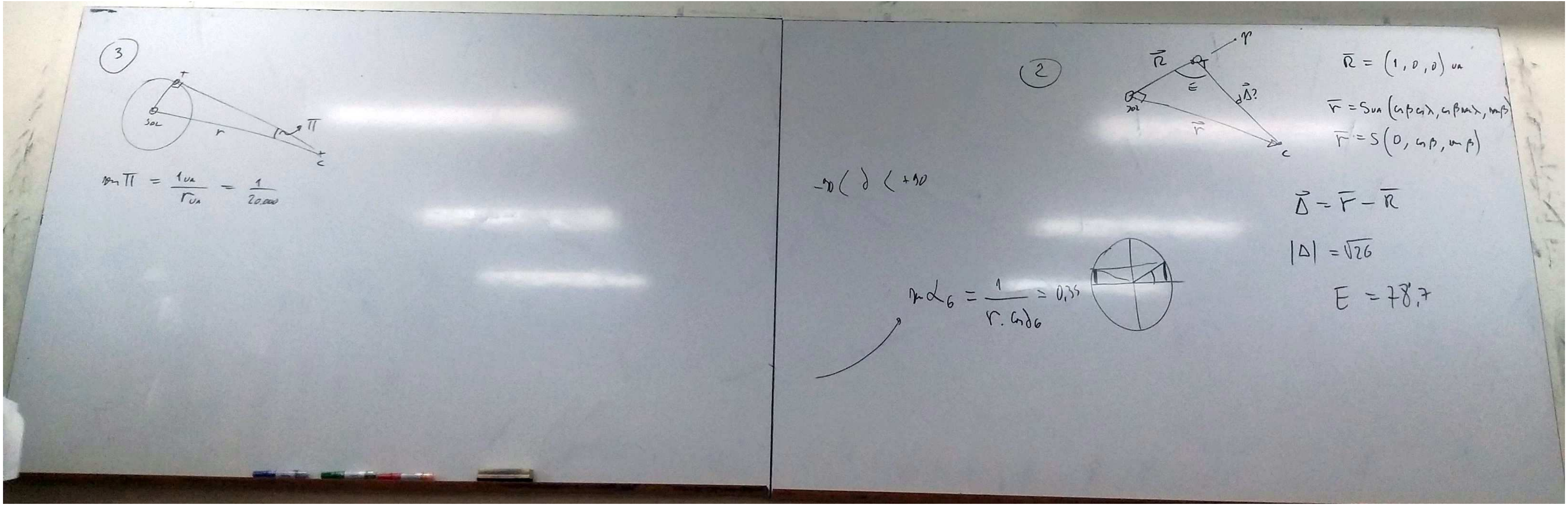

r² = (1R)² + (3R)² = 10R²
R = POS. OBS = (cos φ cos TSL, cos φ sen TSL, sen φ) R
Δ = (cos δ . cos α, cos δ . sen α, sen δ) 3R
r = R + Δ
SAT (α, δ)
F = (3.cos30, 1, 3.cos30) = r (cos δ6 cos α6, cos δ6 sen α6, sen δ6)
-90 < δ < +90
sen α6 = 1 / r. cos δ6 = 0,35

Astronomia Fundamental 2018 - clase 15

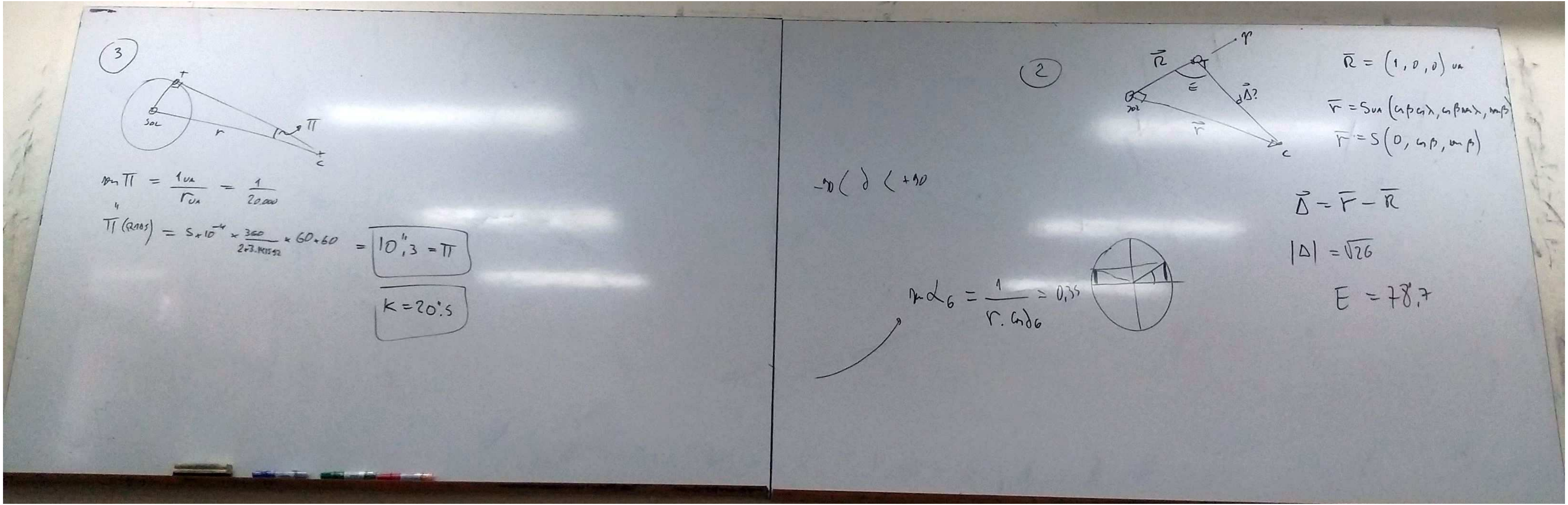


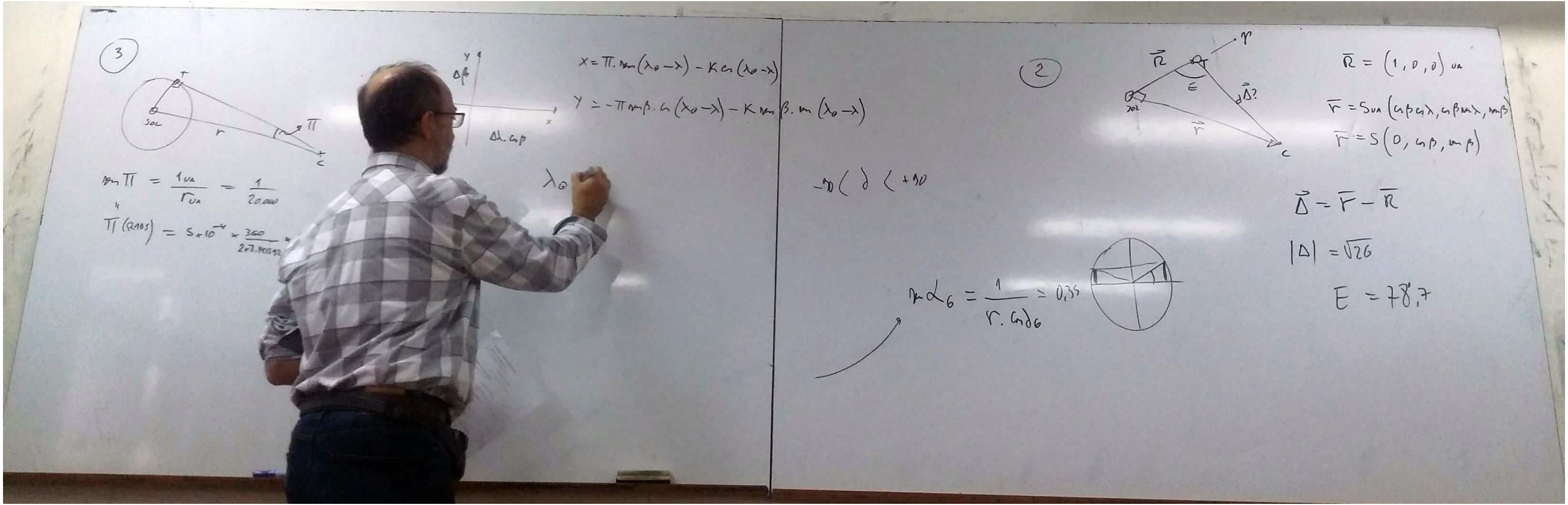
Astronomia Fundamental 2018 - clase 15



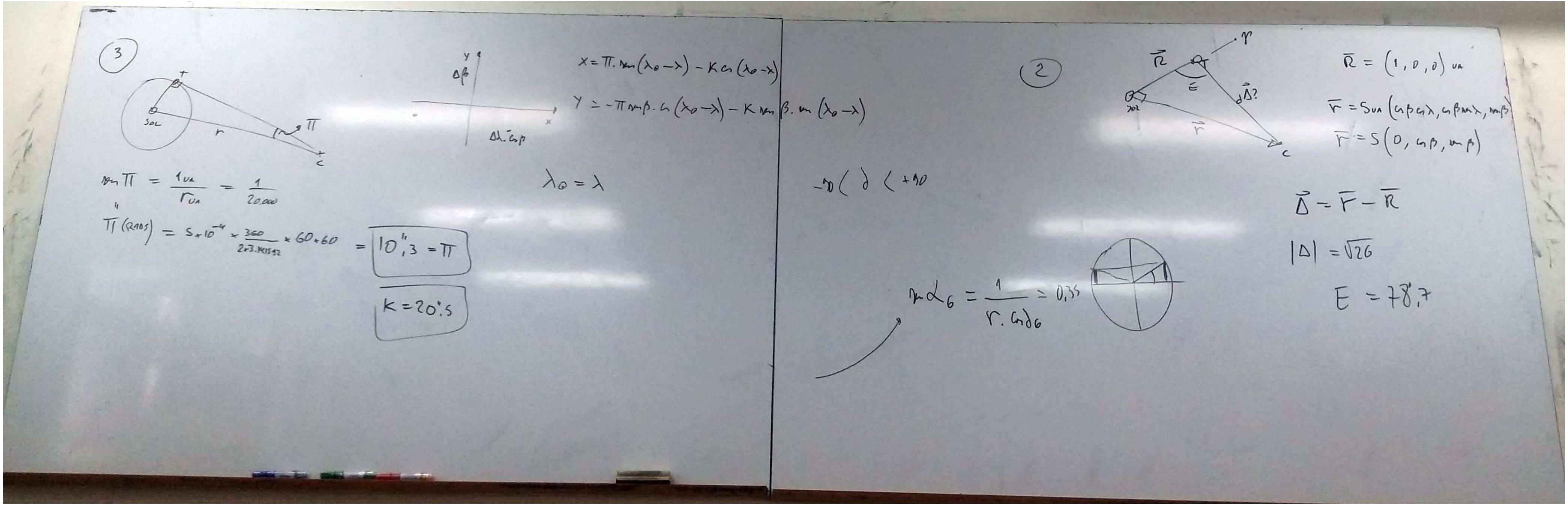

3
SOL
r
Π
c
$\operatorname{sen} \Pi = \frac{1_{UA}}{r_{UA}} = \frac{1}{20.000}$
2
$\vec{R}$
E
SOL
$\vec{\Delta}$?
$\vec{r}$
c
$\bar{R} = (1, 0, 0)$ UA
$\bar{r} = 5_{UA}(\cos\beta\cos\lambda, \cos\beta\operatorname{sen}\lambda, \operatorname{sen}\beta)$
$\bar{r} = 5(0, \cos\beta, \operatorname{sen}\beta)$
$-90 < \delta < +90$
$\vec{\Delta} = \bar{r} - \bar{R}$
$|\Delta| = \sqrt{26}$
$E = 78,7$
$\operatorname{sen}\alpha_6 = \frac{1}{r \cdot \cos\delta_6} = 0,35$

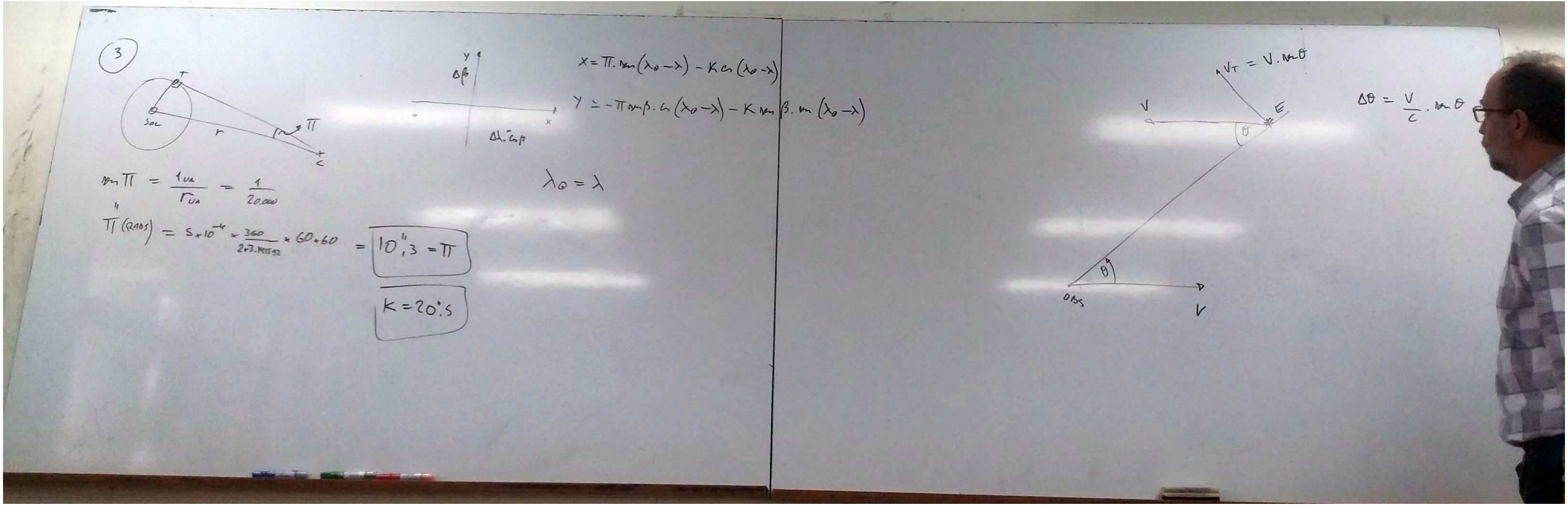
Astronomia Fundamental 2018 - clase 15



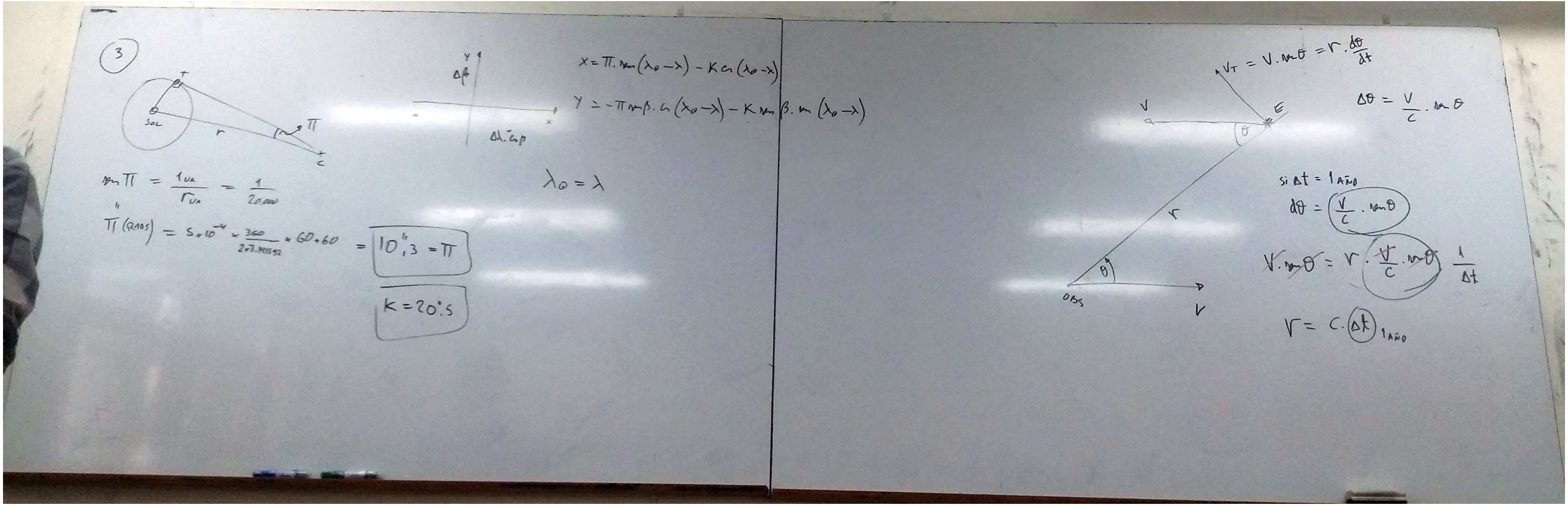

3
SOL
r
π
c
Y
Δβ
X
Δλ. cos β
X = π. sen (λ⊙ − λ) − K cos (λ⊙ − λ)
Y = − π sen β. cos (λ⊙ − λ) − K sen β. sen (λ⊙ − λ)
λ⊙
sen π = 1 UA / r UA = 1 / 20.000
π (RADS) = 5 × 10⁻⁵ × 360 / 2π
2
R = (1, 0, 0) UA
r = 5 UA (cos β cos λ, cos β sen λ, sen β)
r = 5 (0, cos β, sen β)
Δ = r − R
|Δ| = √26
E = 78,7
−90 (δ (+90
sen α6 = 1 / r. cos δ6 = 0,35

Astronomia Fundamental 2018 - clase 15

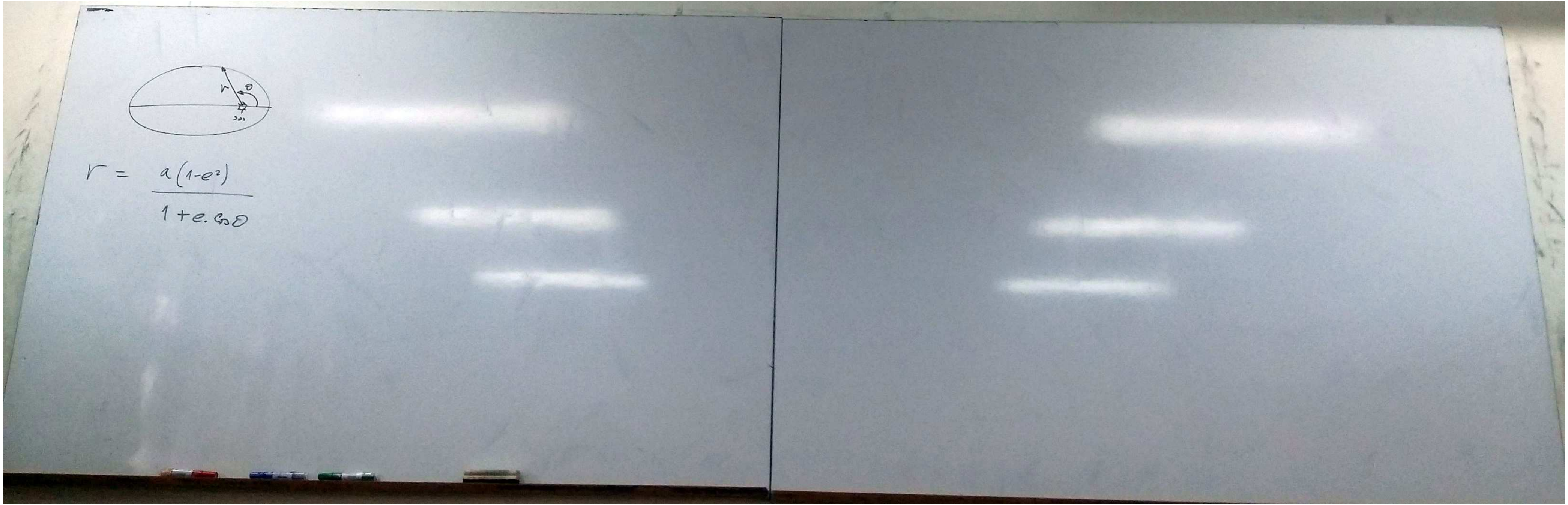


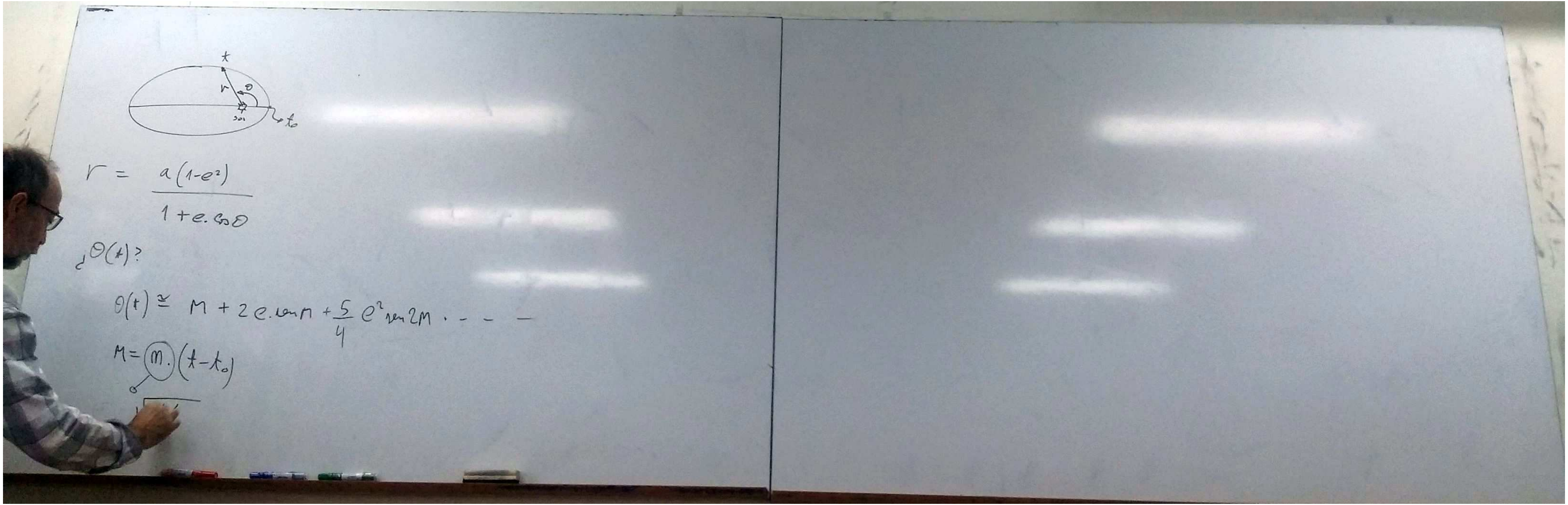

3
T
SOL
r
π
c
sen π = 1 UA / r UA = 1 / 20.000
π'' (RADS) = 5 × 10^-4 × 360 / 2×3.141592 × 60×60 = 10'',3 = π
k = 20'',5
y
Δβ
x
Δλ cos β
x = π. sen (λ⊙ − λ) − K cos (λ⊙ − λ)
y = − π sen β. cos (λ⊙ − λ) − K sen β. sen (λ⊙ − λ)
λ⊙ = λ
V_T = V. sen θ
V
E
θ
OBS
V
Δθ = V / c . sen θ

Astronomia Fundamental 2018 - clase 15

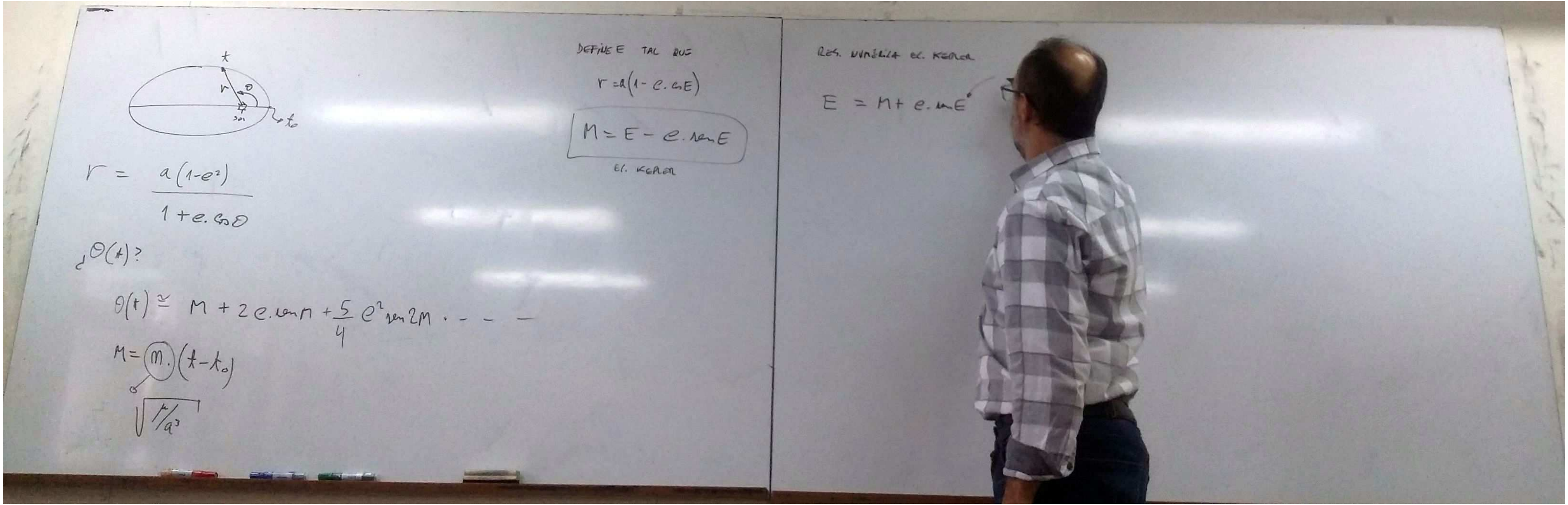


Astronomia Fundamental 2018 - clase 15

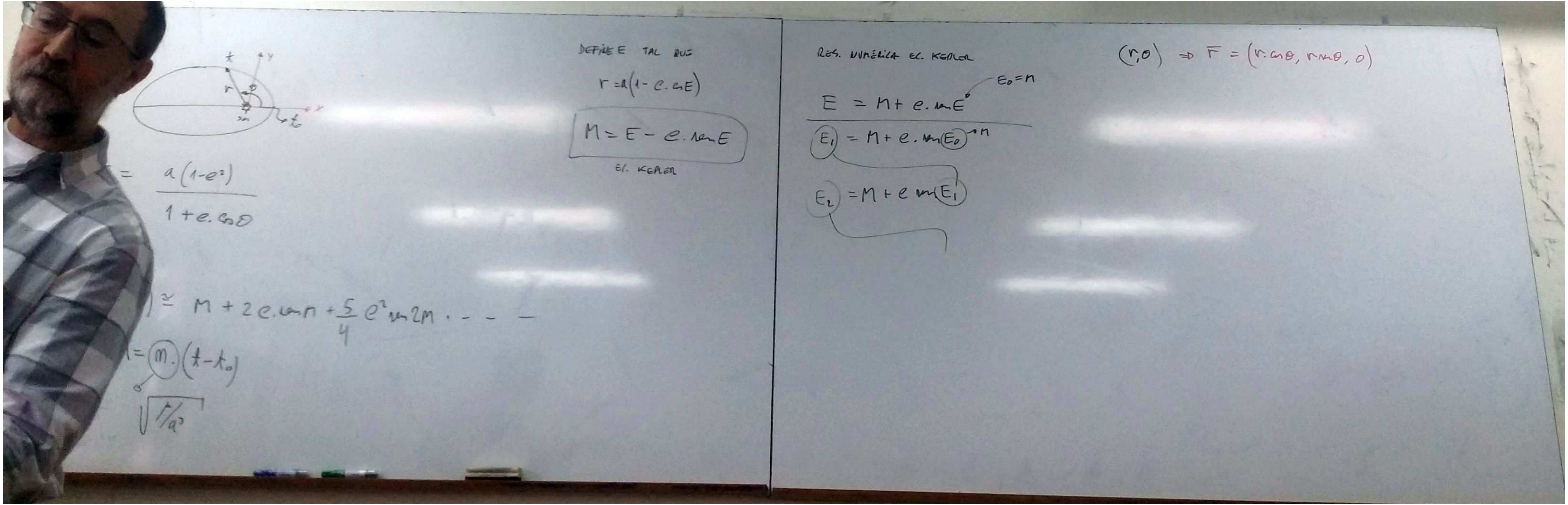


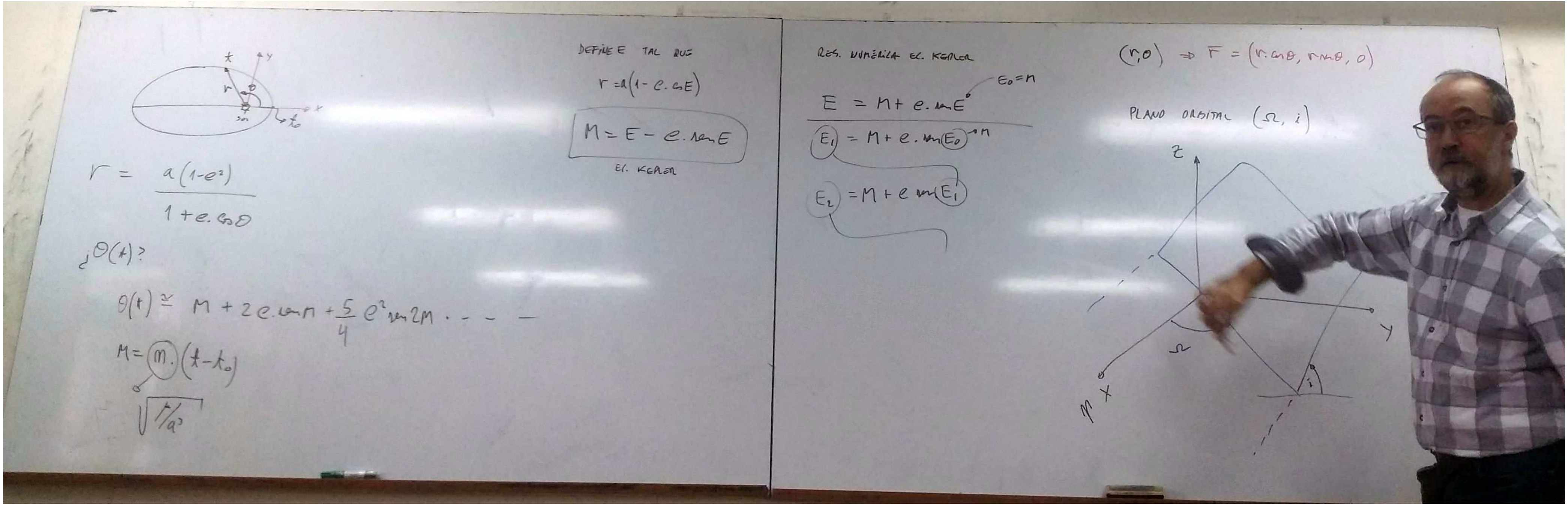

r
θ
sol
t₀
r = a(1-e²) / 1+e.cos θ
¿θ(t)?
θ(t) ≃ M + 2e.sen M + 5/4 e² sen 2M . - - -
M = (m.) (t-t₀)

Astronomia Fundamental 2018 - clase 15

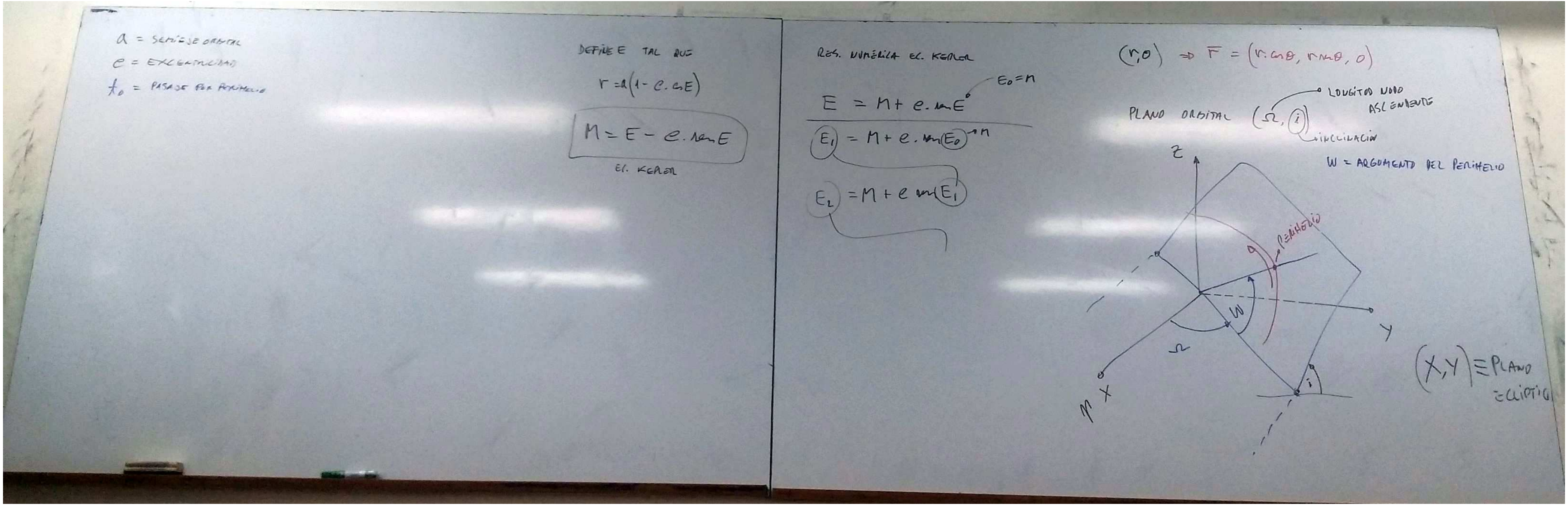


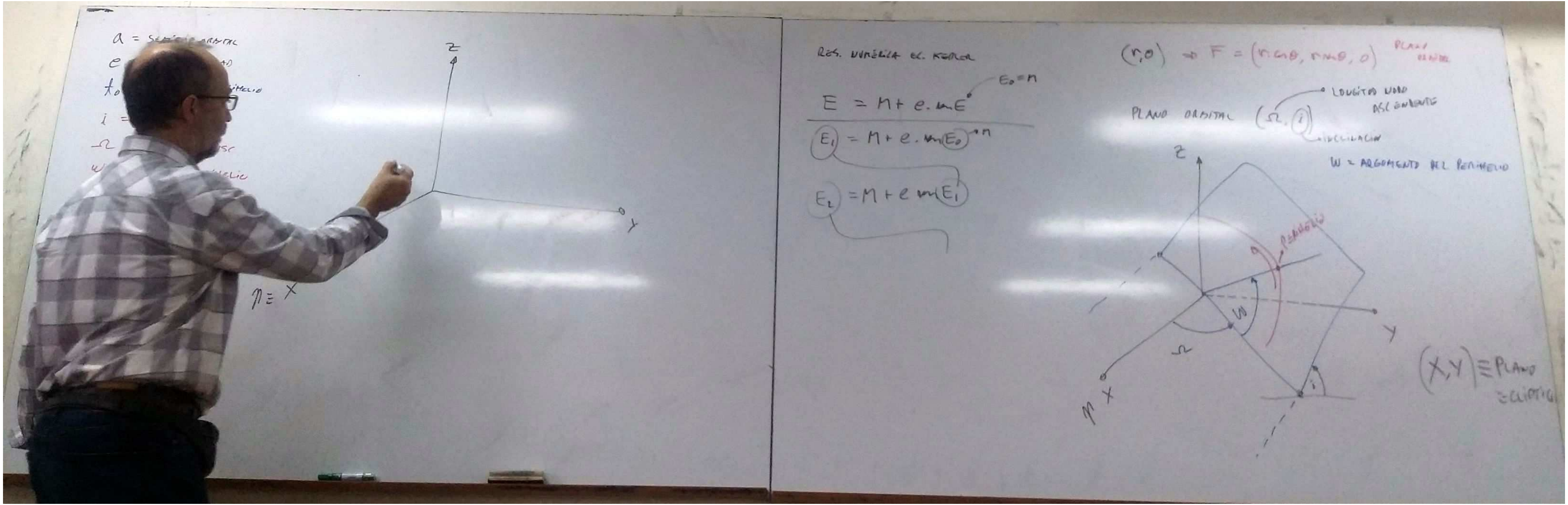
Astronomia Fundamental 2018 - clase 15

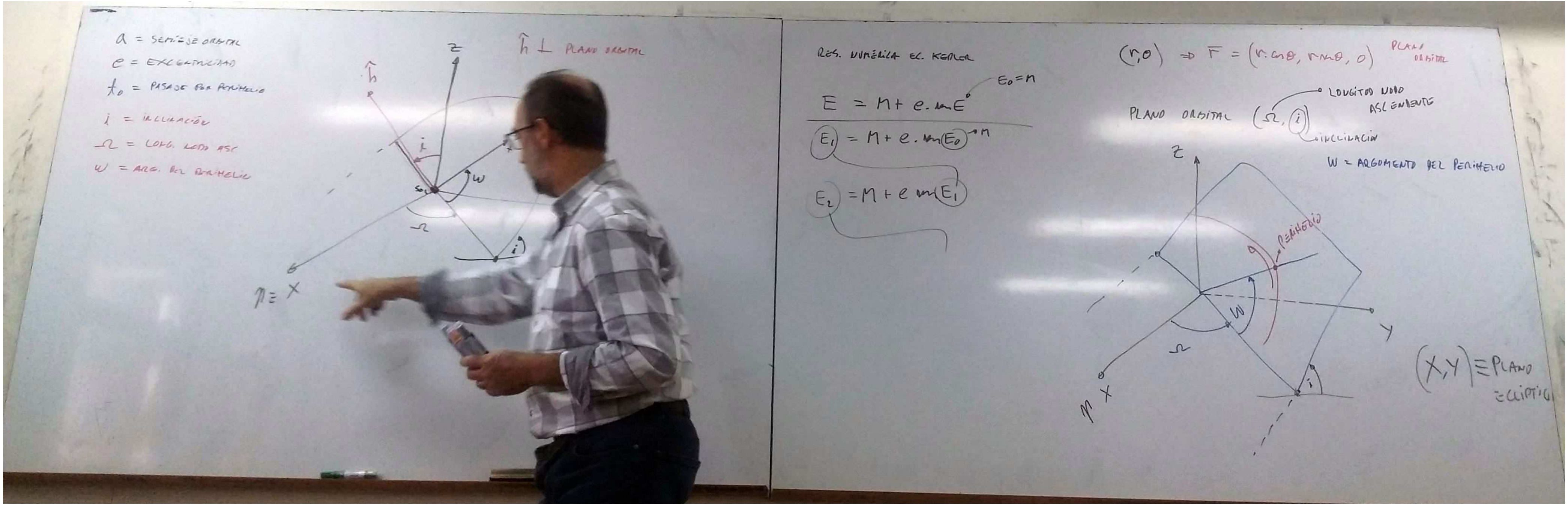



DEFINE E TAL QUE
r = a(1 - e.cos E)
M = E - e.sen E
EC. KEPLER
r = a(1-e²) / (1 + e.cos θ)
¿θ(t)?
θ(t) ≃ M + 2e.sen M + 5/4 e² sen 2M . . . . —
M = n.(t - t₀)
√(μ/a³)
RES. NUMÉRICA EC. KEPLER
E = M + e.sen E
E₀ = M
E₁ = M + e.sen(E₀)
E₂ = M + e sen(E₁)
(r,θ) ⇒ r = (r.cos θ, r sen θ, 0)
PLANO ORBITAL (Ω, i)
z
y
x
Ω
i

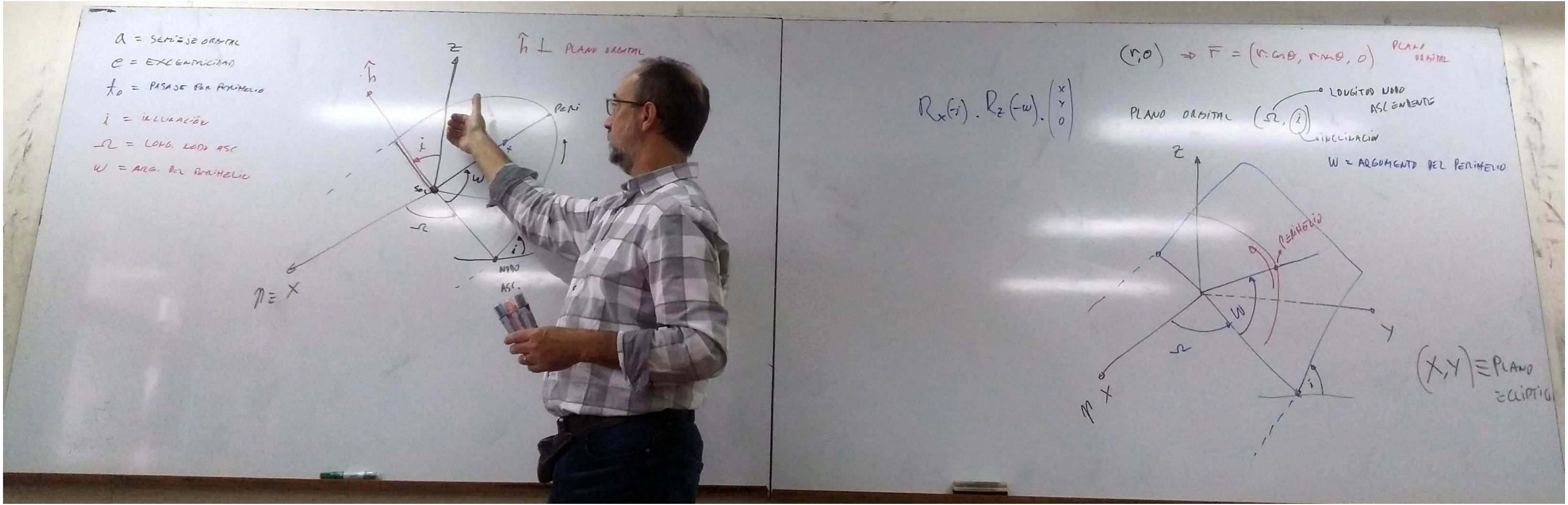
Astronomia Fundamental 2018 - clase 15

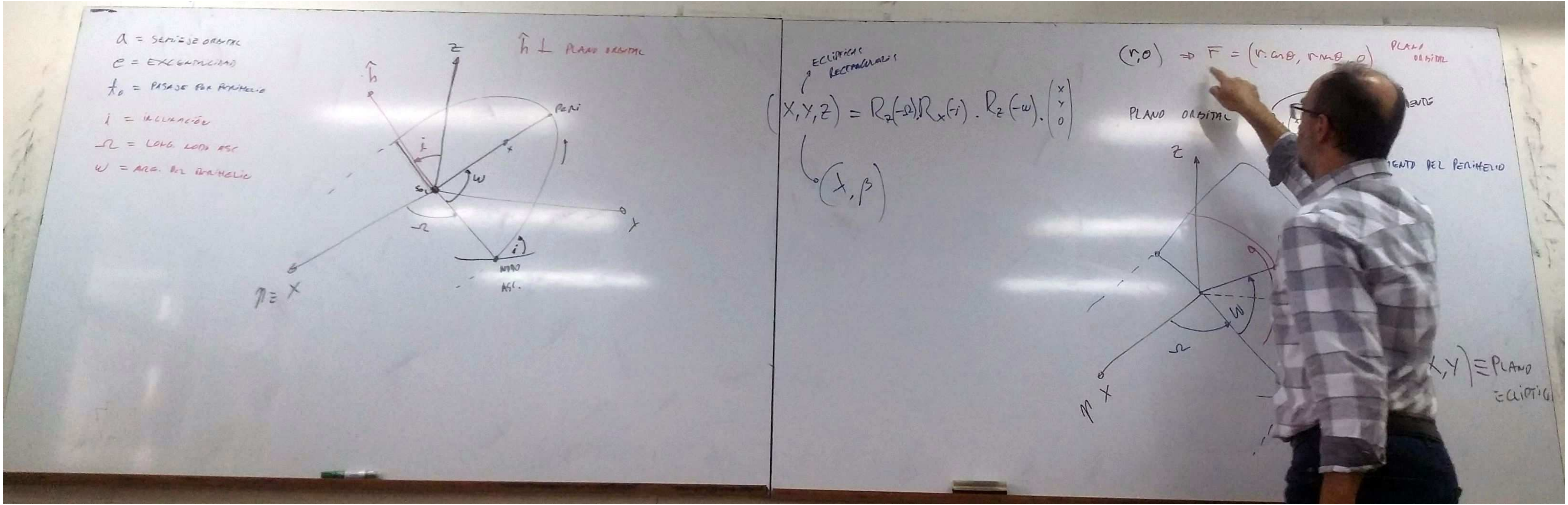



a = semieje orbital
Z
Y
X
E = M + e. sen E
$E_0 = M$
$E_1 = M + e.$ sen(E_0)
$E_2 = M + e$ sen(E_1)
PLANO ORBITAL
INCLINACION
W = ARGUMENTO DEL PERIHELIO
PERIHELIO
(X,Y) ≡ PLANO ECLIPTICA

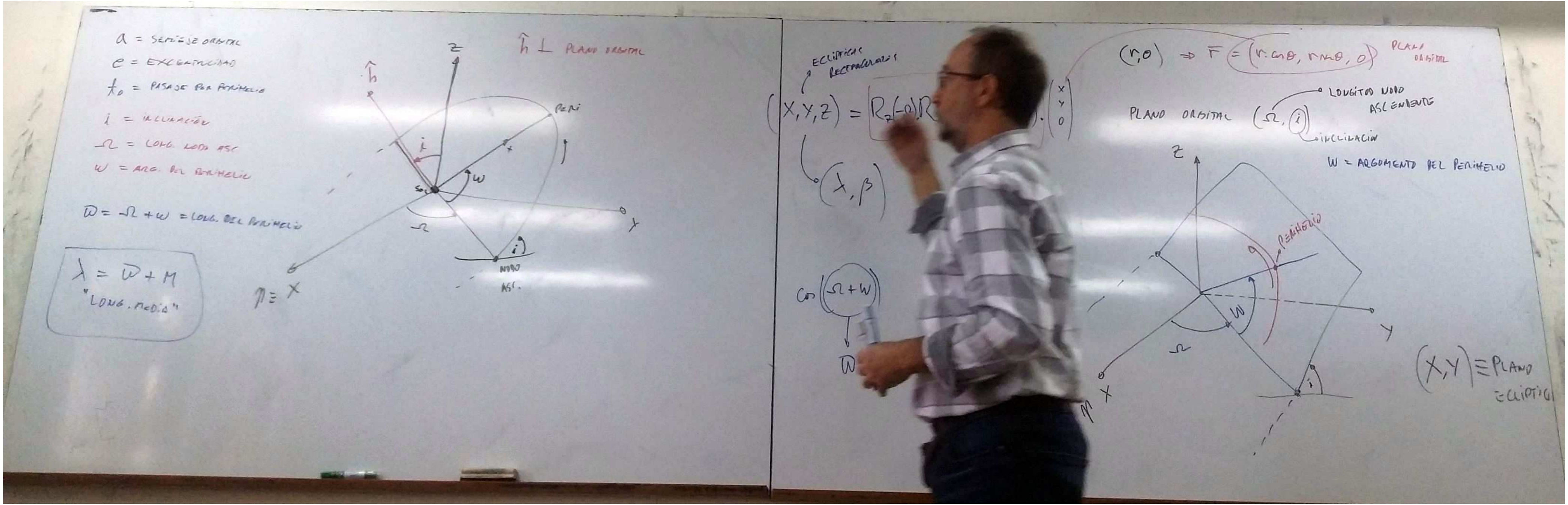

a = SEMIEJE ORBITAL
e = EXCENTRICIDAD
t0 = PASAJE POR PERIHELIO
i = INCLINACIÓN
Ω = LONG. NODO ASC
ω = ARG. DEL PERIHELIO
ĥ ⊥ PLANO ORBITAL
RES. NUMÉRICA EC. KEPLER
E = M + e. sin E
E0 = M
E1 = M + e. sin(E0)
E2 = M + e sin(E1)
(r, θ) ⇒ r̄ = (r. cos θ, r sin θ, 0)
PLANO ORBITAL
PLANO ORBITAL (Ω, i)
LONGITUD NODO ASCENDENTE
INCLINACIÓN
W = ARGUMENTO DEL PERIHELIO
PERIHELIO
(X, Y) ≡ PLANO ECLIPTICO

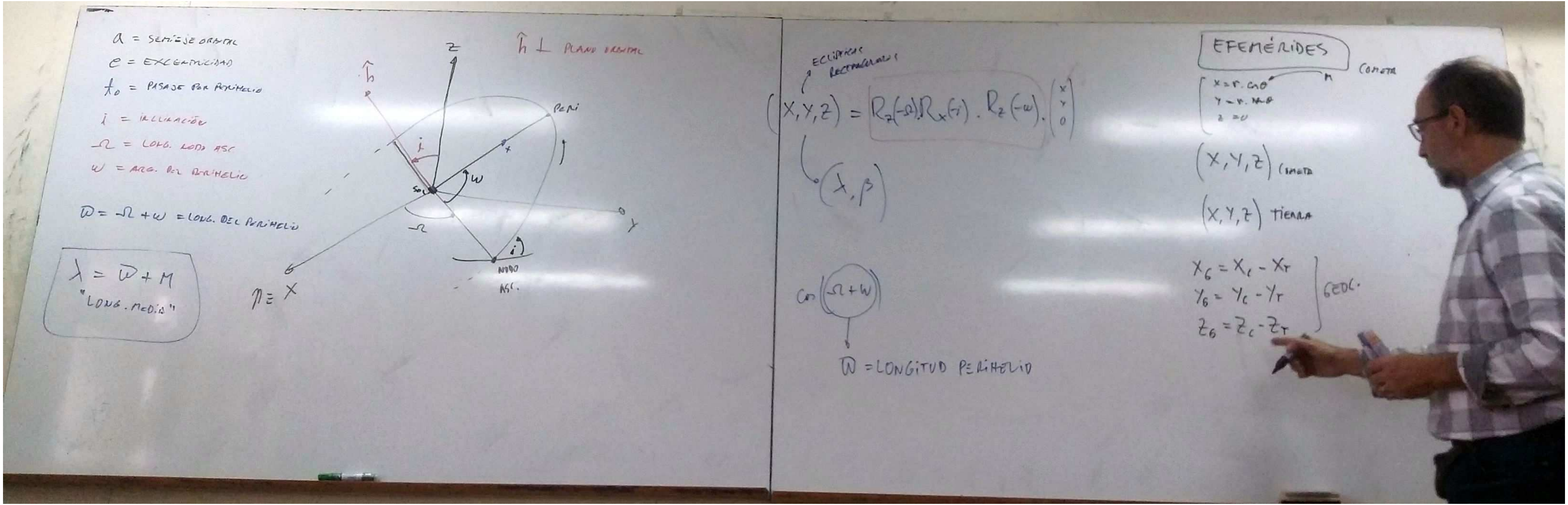
Astronomia Fundamental 2018 - clase 15

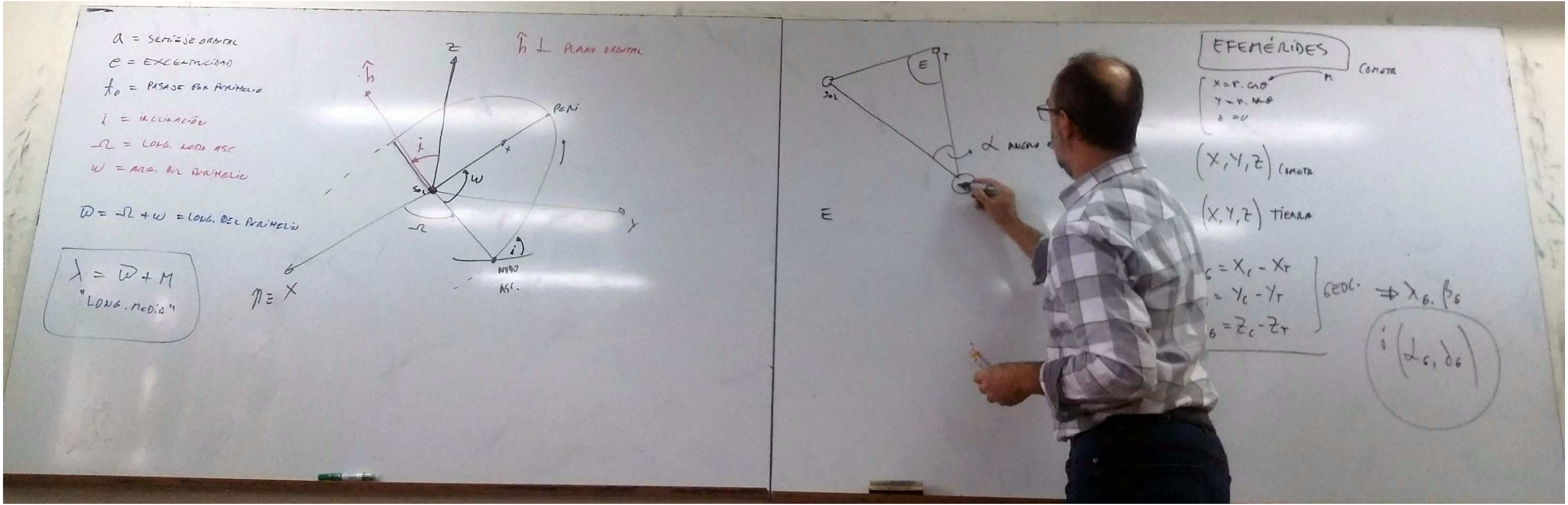



a = SEMIEJE ORBITAL
e = EXCENTRICIDAD
t0 = PASAJE POR PERIHELIO
i = INCLINACIÓN
Ω = LONG. NODO ASC
ω = ARG. DEL PERIHELIO
ĥ ⊥ PLANO ORBITAL
ECLIPTICAS RECTANGULARES
(X, Y, Z) = Rz(-Ω) Rx(-i) . Rz(-ω) . (x, y, 0)
(λ, β)
(r, θ) ⇒ r = (r cos θ, r sin θ, 0)
PLANO ORBITAL
PLANO ORBITAL
(X,Y) ≡ PLANO ECLIPTICA

Astronomia Fundamental 2018 - clase 15






a = semieje orbital
e = excentricidad
t_0 = pasaje por perihelio
i = inclinación
Ω = long. nodo asc
ω = arg. del perihelio
ϖ = Ω + ω = long. del perihelio
λ = ϖ + M
"Long. media"
ĥ ⊥ plano orbital
Z
ĥ
Peri
ω
Sol
Ω
Y
i
Nodo
asc.
γ ≡ X
E
T
Sol
α
E
Efemérides
Cometa
x = r. cos
y = r. sen
z = 0
(X, Y, Z) cometa
(X, Y, Z) tierra
geoc.
⇒ λ$_G$, β$_G$
(α$_G$, δ$_G$)

Astronomia Fundamental 2018 - clase 15