Ensayo

Nombre del Alumno: Jorge Alberto Aguilar López

Nombre del tema: Fuerzas coplanares

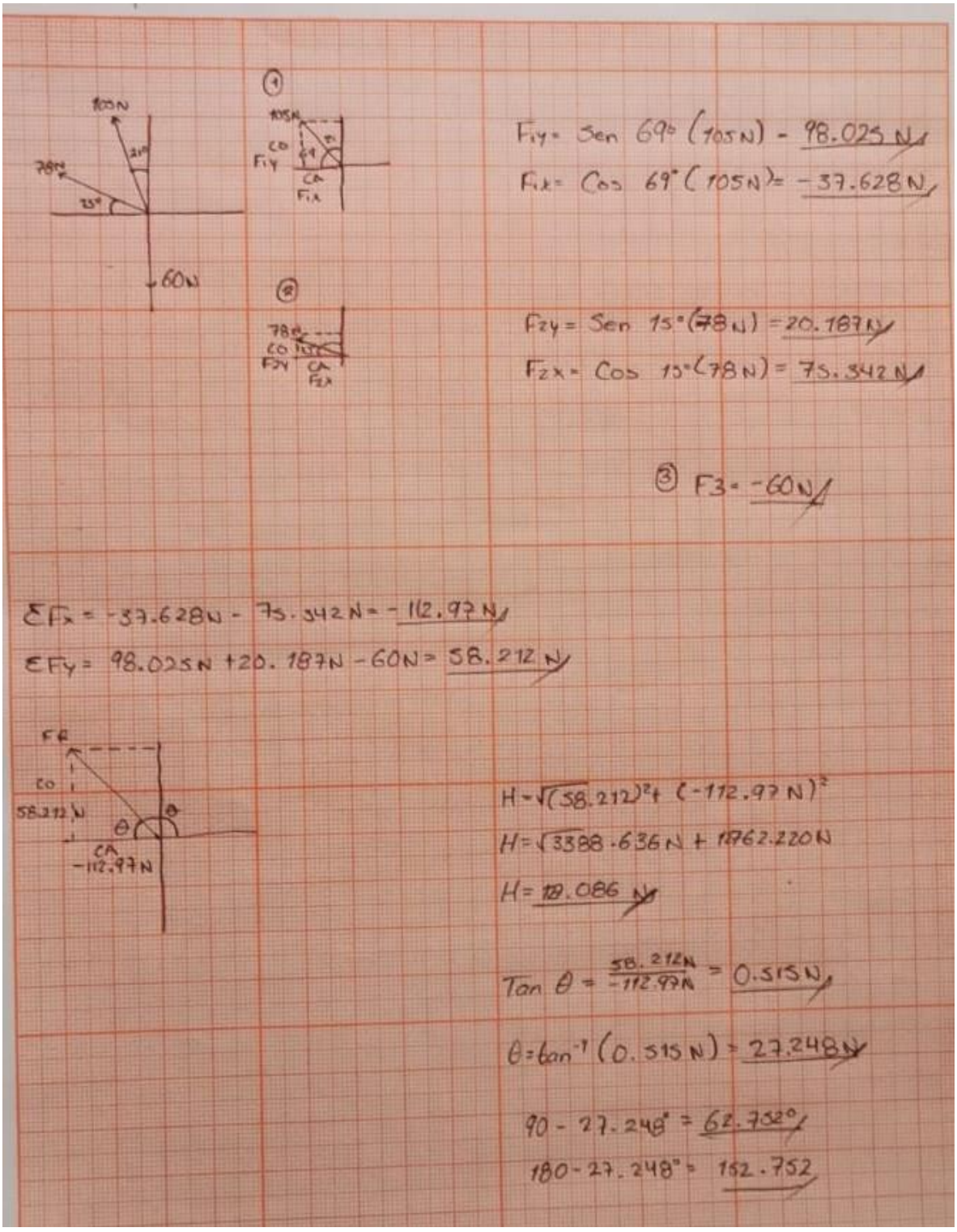
Parcial: I

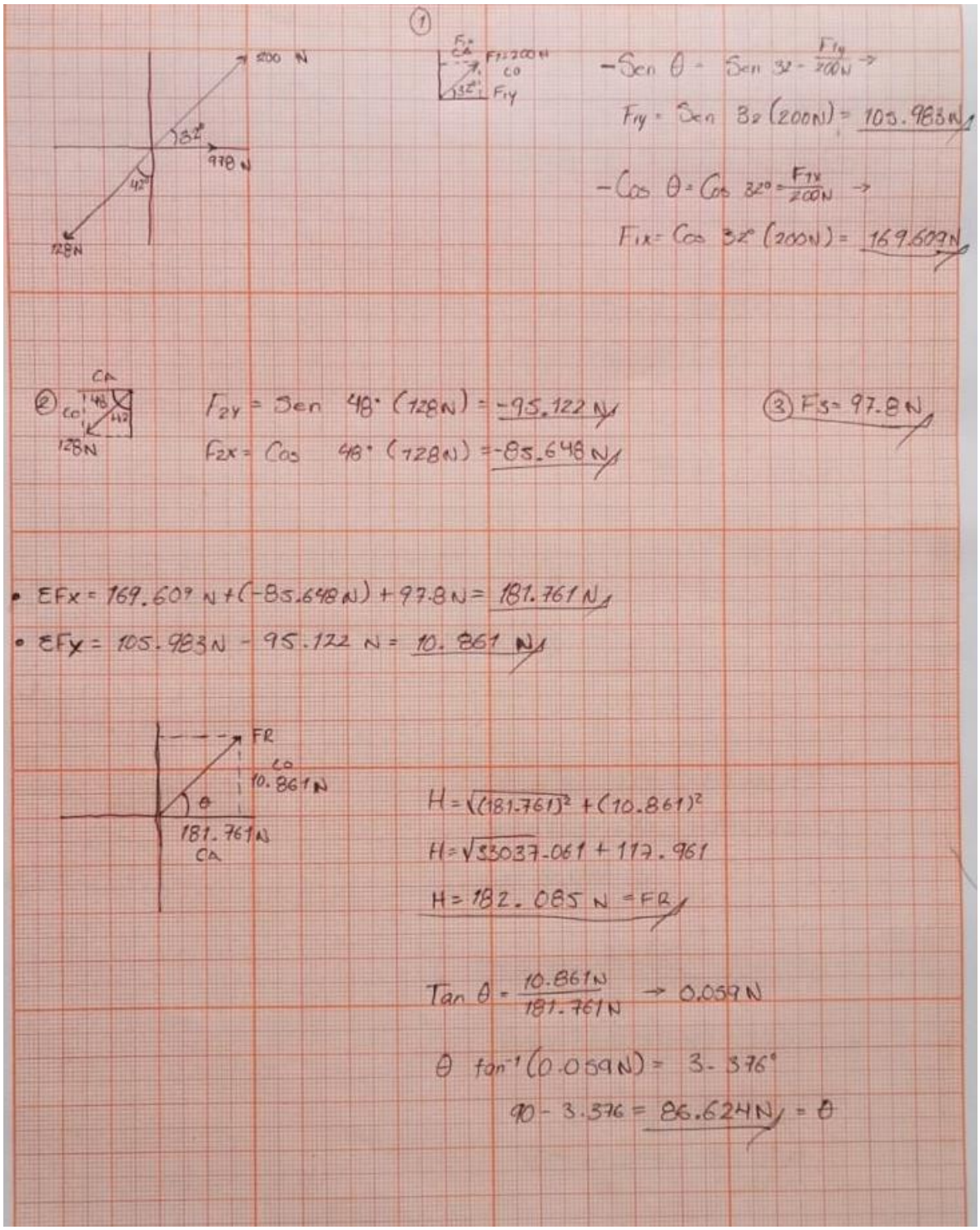
Nombre de la Materia: Resistencia de materiales de construcción

Nombre del profesor: Pedro Alberto García López

Nombre de la Licenciatura: Arquitectura

Cuatrimestre: 4


105N
69°
78N
15°
60N
①
105N
CO
Fiy
69°
CA
Fix
②
78N
CO
15°
Fzy
CA
Fzx
Fiy= Sen 69° (105N) - 98.025 N
Fix= Cos 69° (105N) = -37.628N
Fzy= Sen 15° (78N) = 20.187N
Fzx= Cos 15° (78N) = 75.342N
③ F3= -60N
ΣFx = -37.628N - 75.342N = -112.97N
ΣFy = 98.025N + 20.187N - 60N = 58.212N
FR
CO
58.212N
θ
CA
-112.97N
H = √(58.212)² + (-112.97N)²
H = √3388.636N + 12762.220N
H = 119.086 N
Tan θ = 58.212N / -112.97N = 0.515N
θ = tan⁻¹ (0.515N) = 27.248N
90 - 27.248° = 62.752°
180 - 27.248° = 152.752


200 N
32°
978 N
48°
128N
Fx
CA
F1=200N
CO
32°
Fiy
-Sen θ = Sen 32 = Fiy / 200N →
Fiy = Sen 32 (200N) = 105.983N
-Cos θ = Cos 32° = Fix / 200N →
Fix = Cos 32° (200N) = 169.607N
CA
CO
48°
H2
128N
F2y = Sen 48° (128N) = -95.122 N
F2x = Cos 48° (128N) = -85.648 N
③ F3 = 97.8 N
• EFx = 169.607 N + (-85.648N) + 97.8N = 181.761 N
• EFy = 105.983N - 95.122 N = 10.861 N
FR
CO
10.861N
θ
181.761N
CA
H = √((181.761)² + (10.861)²
H = √33037.061 + 117.961
H = 182.085 N = FR
Tan θ = 10.861N / 181.761N → 0.059 N
θ tan⁻¹ (0.059N) = 3.376°
90 - 3.376 = 86.624N = θ