Typical Answers

Fall Semester Retake Exam. (2022-2023)

University of Salaheddin-Erbil

College of Engineering Time Allowed: 150 min.

Geomatics (Surveying) Engineering Department Subject: Cadastral Surveying

Date of Exam: 20 /12 / 2022 Examiner: Azad Arshad Hawezi

Note: 1- Draw necessary sketches without scale wherever needed 2- Round of decimals to centimeter

Question 1) (20 mark)

1- Cadastral map: a map showing land parcel boundaries. Cadastral maps may also show buildings.

2- Building line: A line or lines on a plat, designating the area adjacent to the street right-of-way and / or lot lines inside of which no building or structure may be erected.

3- Digitizing: the process of converting graphic maps into digital form.

4- Lot: A parcel of land intended to be separately owned, rented developed, or otherwise used as a unit for a dwelling.

5-Subdivision: the process of dividing a land parcel into smaller parcels.

Question 2) (40 mark)

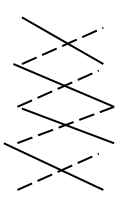
Find coordinates of point F, to divide the polygon A, B, C and D to two equal parts, point E is on the line BC, coordinates of points are:

Point	Easting m	Northing m
A	10.89	62.98
B	25.33	84.04
C	73.84	50.79
D	59.40	29.73
E	49.58	67.42

Solution:

Area of ABCD from the formula

	N		E
A	62.98		10.89
B	84.04		25.33
C	50.79		73.84
D	29.73		59.40
A	62.98		10.89



2A=(111.171.48-8137.98) = 3033.50 m²

Area ABCD = 1516.75 m²

Area ABE = 379.19 m²

Area AEF = 379.19 m²

AE =√ (Δ E +Δ N)

AE = 38.95 m

α = tan -¹ Δ N AE / Δ E AE = 6˚ 32′ 47.5″

β = tan -¹ Δ N AD / Δ E AD = 34˚ 25 ′ 40″

Θ = 6˚ 44′ 32″ + 34˚ 38 ′ 25″ = 40˚ 58′ 27.4″

Area of ECF = ½ FC. EC Sin Θ

379.19 m² = ½ FC 38.95 m. Sin (40˚ 58 ′ 27.4″)

AF = 29.69 m

ΔN of AF = AF Sin β

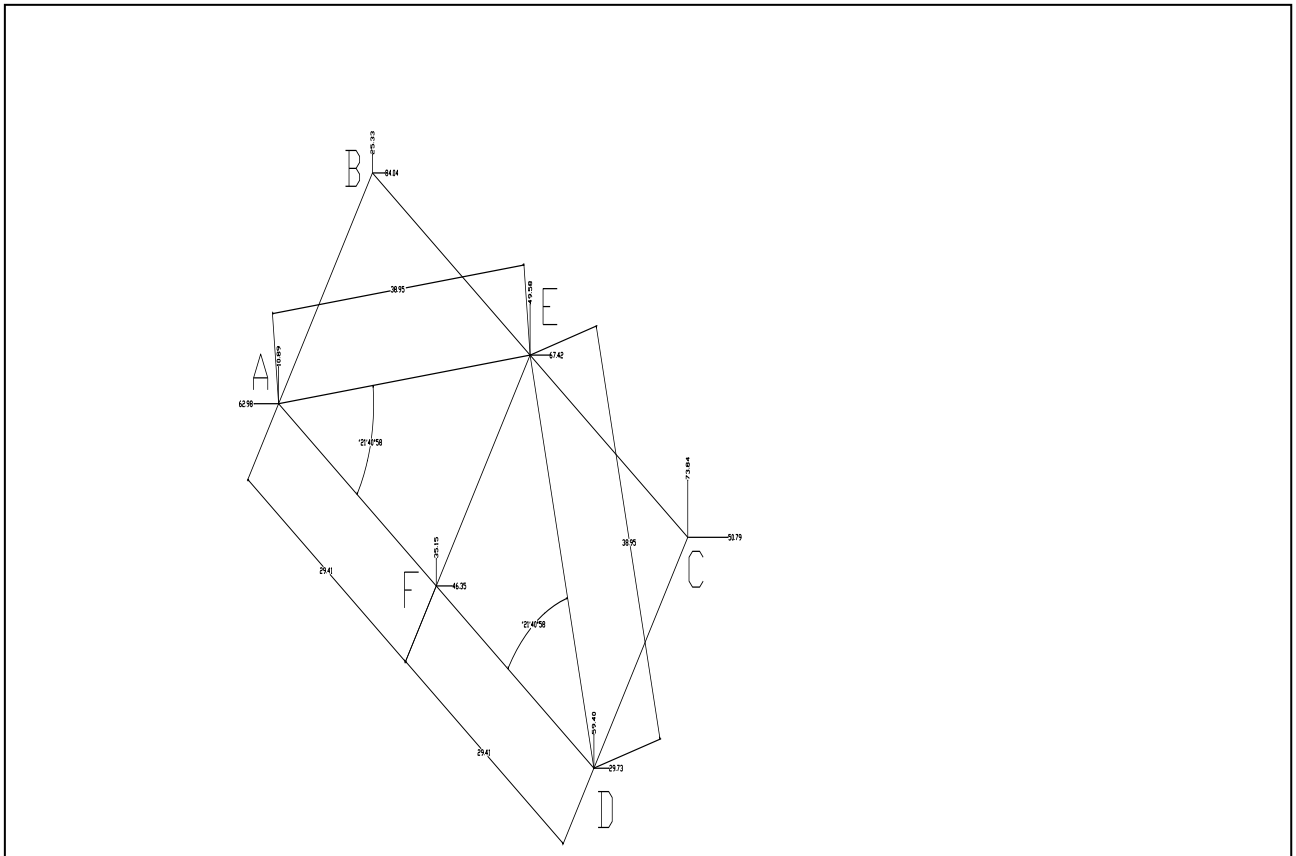
ΔN of AF = 29.69 m Sin 34˚ 25 ′ 40″ = 16.78 m

ΔE of AF = AF .Cos β

ΔE of AF =29.69 m. Cos 34˚ 25 ′ 40″ = 24.49m

E of Point F = E of point A + ΔE of AF= 10.89 + 24.49 = **35.38 m`**

N of Point F = N of point A - ΔN of AF = 62.98 - 16.78= **46.20 m**



Question 3) (40 mark)

A candidate square parcel for subdivision its dimension is (137.00) m , lot dimensions are (25 , 12.5)m street width is 12 m , the parcel have no existing streets around it , Find a- Number of blocks b- number of lots c- lots new dimension if there is change to the dimensions d- check the results e- draw the plan of the lots and write number all of them .

Solution:

	b	
Es	Odd	Even
0	Ns =m+1	Ns =m
1	Ns =m	Ns =m
2	Ns =m	Ns =m-1

Pw/Ll =b+R

137.00 m / 25m = 5.48

b=5 , R =0.48 x 25= 12 m

m=b/2=5/2= 2.5 ≈ 2

there is no existing streets along parcel length

when Es=0 b is odd Ns =m +1= 2+1=3

Ts = 3 x12= 36 m

36 m > 12 m therefore Ts > R

Must drop one block

B=5-1=4 R= 25 + 12 = 37 m

m=b/2=4/2= 2

when Es=0 b is even Ns = m = 2

36 m < 37 m therefore Ts < R

Wr = Pw - (S X Ns) = 137 m -(12 X 2) = 113 m

Ll = 113 m / 4 = 28.25 m

Number of lots in one block

Pl / Lw = r + R

(137.00 m / 12.5 m = 10.96

r= 10 , R = 0.96 X 12.5 = 12 m

1) number of blocks = 4

2) number of lots = 4 X 10 = 40

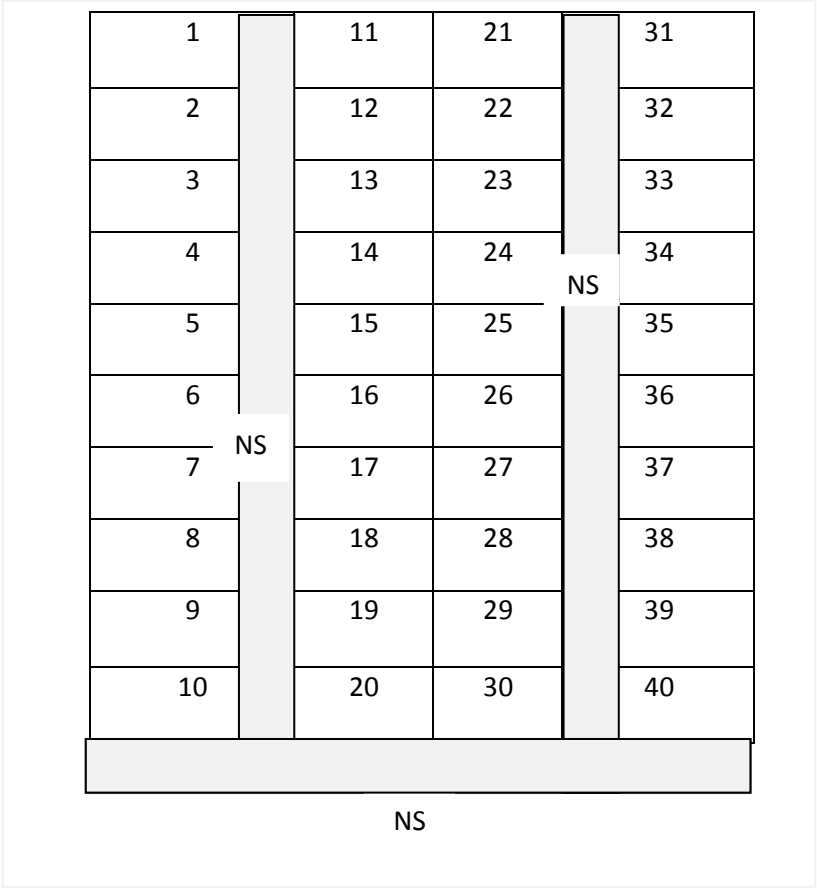
3) lot new dimensions = (28.25 x 12.5) m

4- for check :

Pw =(28.25X 4) + (2 X12) = 137 m

Pl = (12.5 x 10) + 12 = 137 m

5- the plan



Question4) (20 mark)

Answer in one sentence the following COGO program questions:

1- Can you draw a figure directly or not?

No cannot draw, must input point by coordinates then draw depend on the point

2- What's the deference between the bearing and azimuth?

The bearing beginning from north or south to the east or west and its limit from 0 to 90 but the azimuth varies from 0 to 360 from north clockwise

3- What's the deference between Divide and divide segment in Line Menu?

Divide is dividing the line by deferent distance's input but divide segment is divide the line equally to number segments

4- What's the deference between Crandall and compass in traverse adjustment?

Crandall adjust the lines but compass adjust the angles

5- What's the deference between report and list ?

Report gives the details of figures but list only give the name of figures