

Saskatchewan Land Surveyors Association

Practical Surveying

April, 2016

Time Allowed: 3 hours

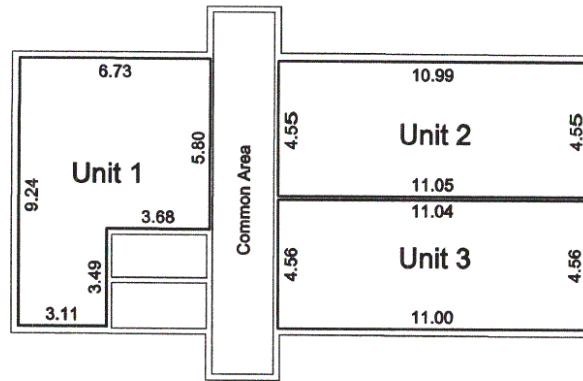
Instructions

- You may use any self contained calculator or computer that is battery operated.
- Partial marks may be awarded for incorrect answers if the solution process can be followed and is correct.
- Intermediate calculations are not necessary, but sketches and/or a brief description of geometric construction will show that you understand the problem and solution process.
- For traverses, a sketch showing the angular and linear input is all that is required. Showing coordinates is not required unless they form part of the answer.
- If the information appears vague, incomplete or incorrect and you make an assumption, state that assumption in your work.

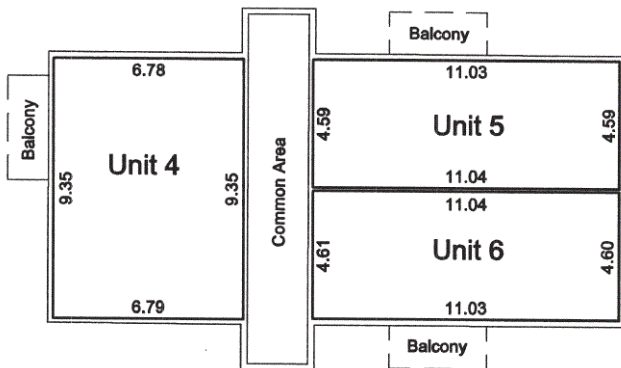
Question 1

15 marks

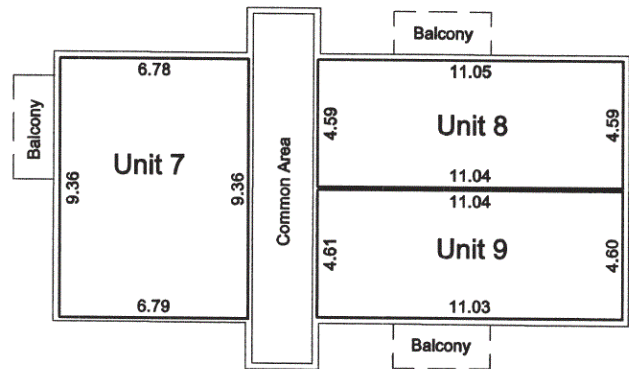
The following are floor plans showing the dimensions for the 9 units on a condominium plan. Prepare a schedule of areas and unit factors for the 9 units. The developer has requested that the unit factors be based on the unit areas. Areas are to be shown to one decimal place.



FIRST FLOOR PLAN



SECOND FLOOR PLAN



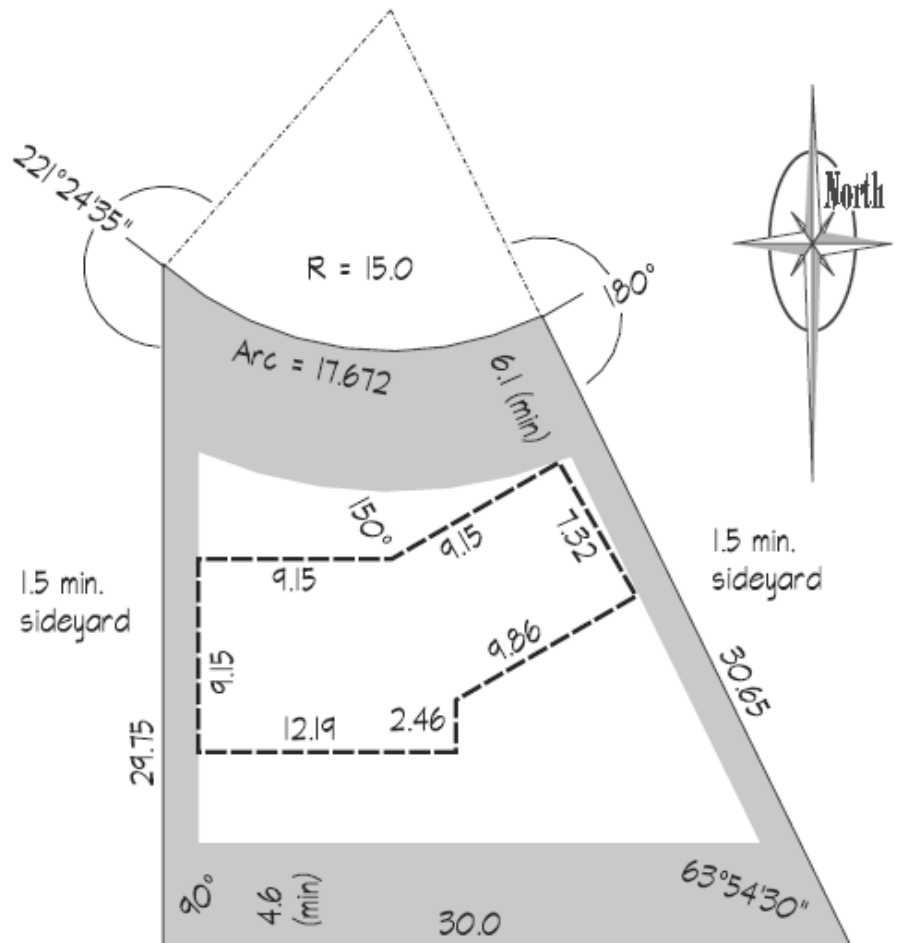
THIRD FLOOR PLAN

Question 2

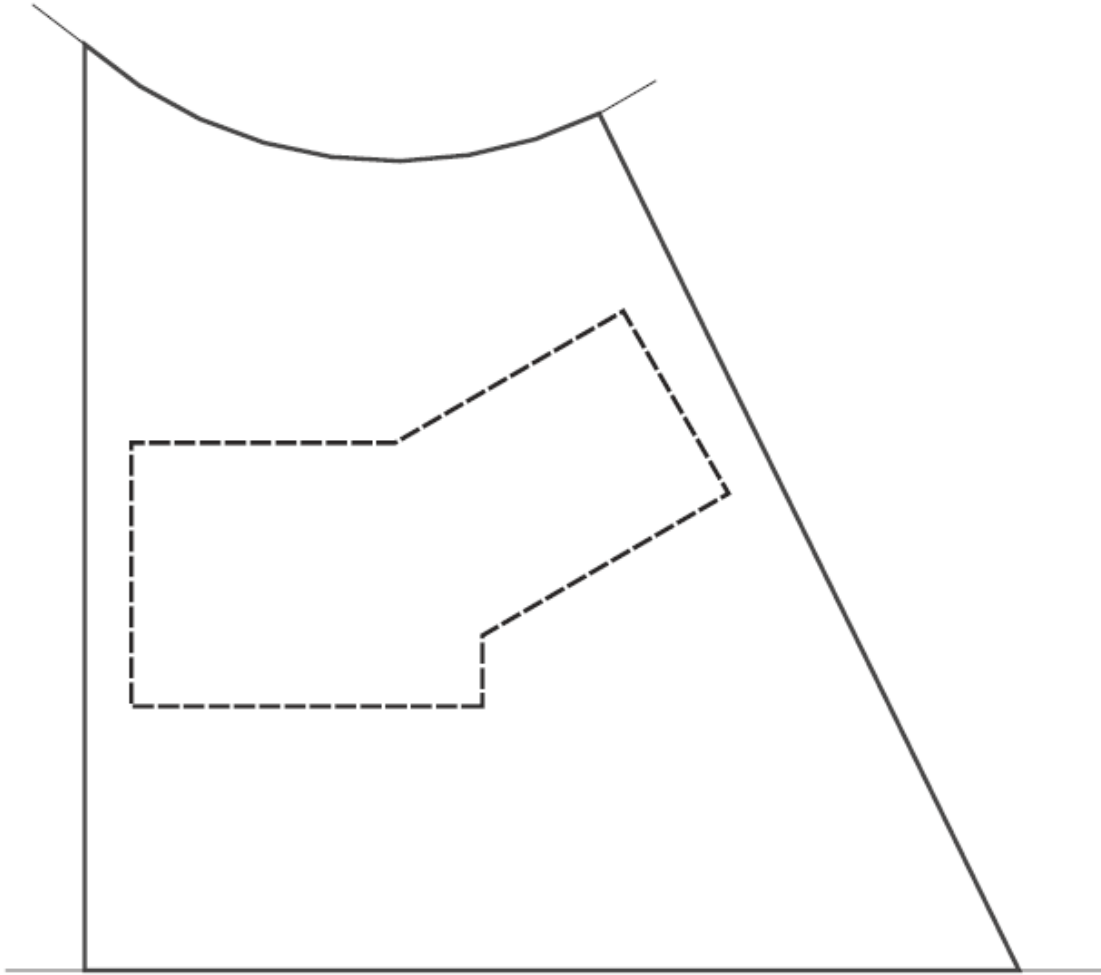
5 marks Confirm the information on the lot below. Show the angular and linear closures.

15 marks The client wishes to place his house on the lot as shown on his sketch. The limits of the house are shown as a heavy dashed line. Note that the deflection in the house is 30 degrees. The west side of the house is to be parallel with the west boundary of the lot. The minimum side yard is 1.5 metres and the minimum setback from the street is 6.1 metres. The unshaded part of the lot is where the house can be positioned within these limits. Calculate the position of the house and the clearances on all sides so that you can advise the client. Show your ties to the nearest adjacent boundaries of the lot.

5 marks What quick and easy checks could you do with a chain after you place the offset pins to ensure they are correct.



Sketch for Question 2

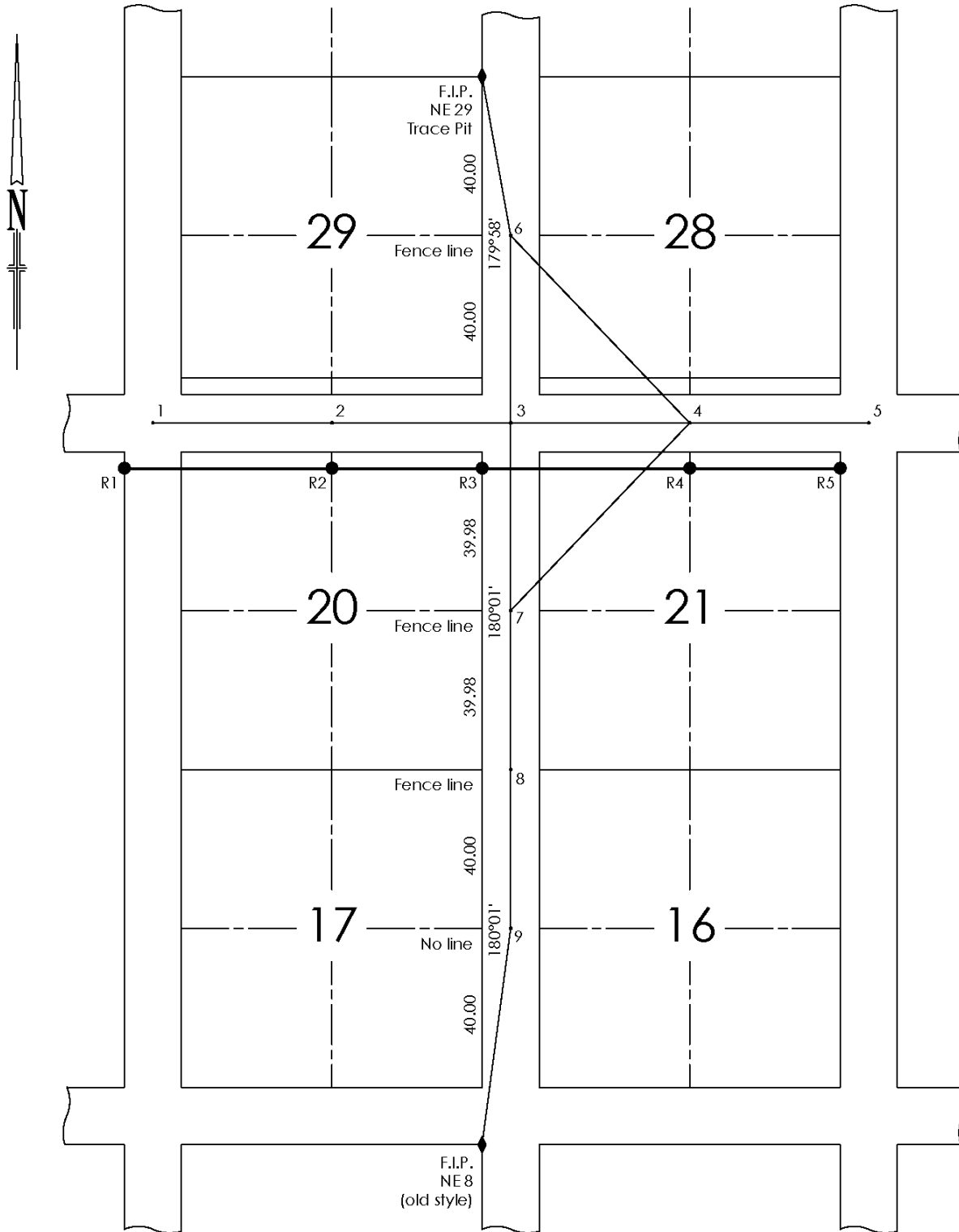


Question 3

- 15 marks You have found an I.P. at the NE 8 and NE 29. Using the field notes on the following page, compute the information (angle and distance from the traverse nails) to look for the NE corner of section 17 and 20 from the township platt information (shown on sketch). Use the bearings from the township platt information when establishing the corners.
- 10 marks From your search, an I.P. hole is found at the NE corner of section 17. The angle, back sighting on nail 7 and setup on nail 8, to the I.P. hole is compute the position of the NE corner of section 20. and establish R3 (angle and distance from the traverse nail). The survey line (R1-R5) is parallel and offset 12.0 metres south of the traverse line (1-5).
- 15 marks Compute the information (distances and angles) for the east boundaries of 17, 20 and 29. Compute the widening and angle from the survey line to the east boundary of section 20 at R3.

You can show the information on the sketch on page 8

Question 3 cont'd - Field Sketch for Question 3



Question 3 cont'd - Field Notes for Question 3

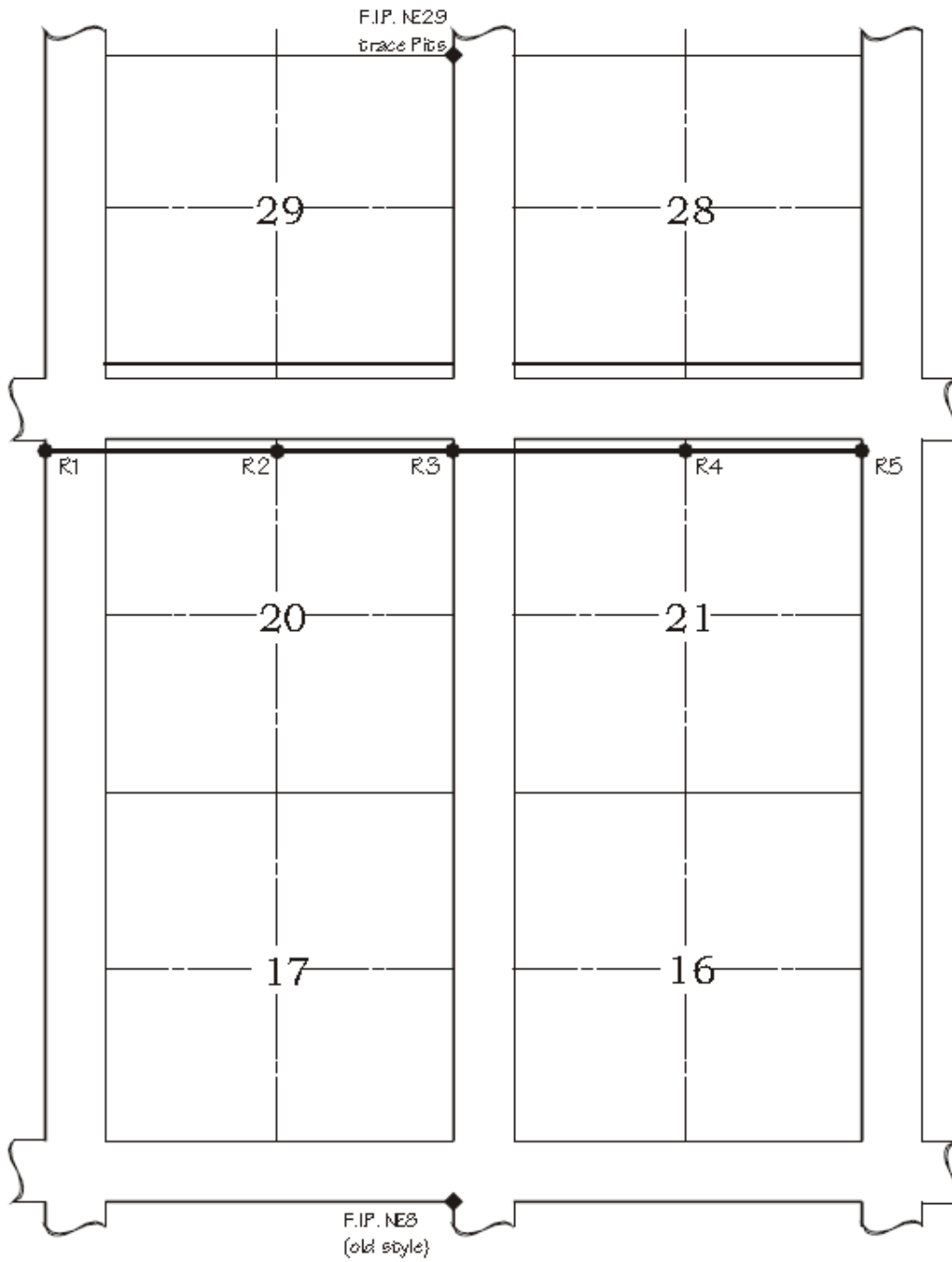
21-Jul-94
 Job: 1006-05
 Inst. Nikon NTM-A10
 Conditions: Cloudy and calm (can see for miles)

Joe Surveyor
 Bob Rodman

Station	HCR	Distance (horizontal)
at Nail 2 - BS at Nail 5 - 0°00'		
Nail 5	0°00'00"	2439.53
Nail 4	0°00'00"	1627.19
Nail 3	0°00'00"	811.52
at Nail 6 - BS at Nail 3 - 0°00'		
Nail 3	0°00'00"	817.64
Nail 4	315°05'20"	1155.28
F.I.P NE29	179°30'00"	804.33
at Nail 7 - BS at Nail 3 - 0°00'		
Nail 3	0°00'00"	810.86
Nail 4	45°09'50"	1150.29
Nail 9	180°	1604.62
Nail 8	180°	804.15
at Nail 9 - BS at Nail 7 - 0°00'		
F.I.P NE8	180°43'20"	830.89

Note:
 The angles are from
 the BS nail for each tie

Question 3 cont'd - Answer Sketch for Question 3



Question 4

In question 3, the survey nails were placed on line with the fence lines.

5 marks

How close are the fence lines to the final reestablishment (approx. north/south distance)?

There is some redundant information in the survey information (two triangles).

5 marks

Compute the linear accuracy in each case and briefly discuss if it is acceptable.

5 marks

Because of the differences in the measurements, what error could you expect in the computed angle at R3?

5 marks

If the hole you dug at the NE of section 20 looking for evidence was 1.5 metres across, does the new position, calculated after you found the I.P. hole at the NE of section 17, still fall within this hole?