Define surveying.

List and discuss the three main reasons for surveying.

Discuss the difference between geodetic and plane surveying, and reasons why each is used today.

Discuss the importance of proper field notes and list four of the several points to remember about field notes.

List and discuss three of the five basic requirements of good field notes.

List a type of information best discussed by each: tabulation, description, and diagrams.

Discuss the reasons for listing the date, weather instrument, and party information in good field notes, and why notes should be original and without erasures.

Know the English and metric units for various surveying measurements and how to convert among units (standard conversions will be provided during the exam).

List and give an example for each of the five types of surveying measurements.

Discuss the differences among blunders or mistakes, systematic errors, and random errors, and discuss a source of each type.

Know the difference between precision and accuracy.

Describe the reasons for significant digits and apply the theory to problems.

Be able to apply rounding rules to problems (as discussed in class).

Know that distances in plane surveying are assumed to be horizontal distances.

List the standard methods for measuring distances and the expected accuracy of each.

List an application for pacing, taping, and EDM.

List the purpose of each taping accessory and explain when it is used.

List the jobs of the head and the rear tapepersons.

List and discuss the procedure for proper distance measuring with a steel tape.

Discuss “breaking tape” and other methods of measuring distances on steep slopes.

List five of the nine common sources of taping errors and list how to minimize them.

Know how to calculate areas using rectangles, circles (including circular sectors), and triangles.
NATR 142
PLANES SURVEYING

Instructor: Dr. Walid Shayya

First Examination
Equations Sheet

1 ch = 100 links = 66 ft = 4 rods
1 mi = 5280 ft = 1.609 km

1° = 60'; 1' = 60"; 1° = 3600"
1 ac = 43,560 ft²

1 yd = 3 ft
1 ft = 12 in

1 m = 3.2808 ft

\[ A = \sqrt{s (s-a) (s-b) (s-c)} \]

\[ s = \frac{a + b + c}{2} \]

\[ A = \frac{a b \sin \alpha}{2} \]

\[ A = \pi r^2 \frac{\alpha}{360°} \]

\[ A = a b \]