Name: _____ Date: _____

Lab Partner: _____ Period: _____

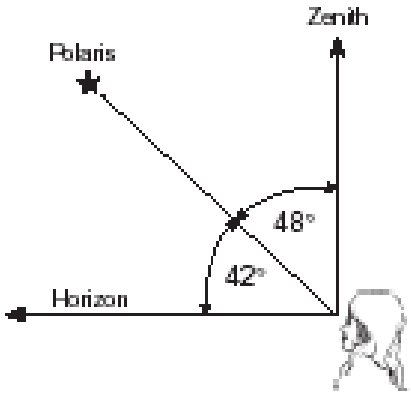
LAB #2: ASTROLABE

Introduction: Lost out at sea, Captain Jack Sparrow pulls out his iPhone to find his location on Earth. "Siri, come in Siri", he calls into his phone, there is no response. With no maps or GPS, Captain Jack needs to figure something out fast because he knows he may be approaching unfriendly waters if he travels too far north. While he readies the ship for an attack, he leaves his first mate (you! Ahh!) with an important task.

Purpose: Using your hand made astrolabe, you must find the altitude of the Polaris to find your latitude on Earth.

Warm-up:

Polaris is the scientific name for the _____ star. Polaris is only visible to an observer _____ of the equator. **The _____ of Polaris is equal to the _____ of the observer.**



Vocabulary:

Altitude:

_____

_____

Latitude:

_____

_____

Zenith:

_____

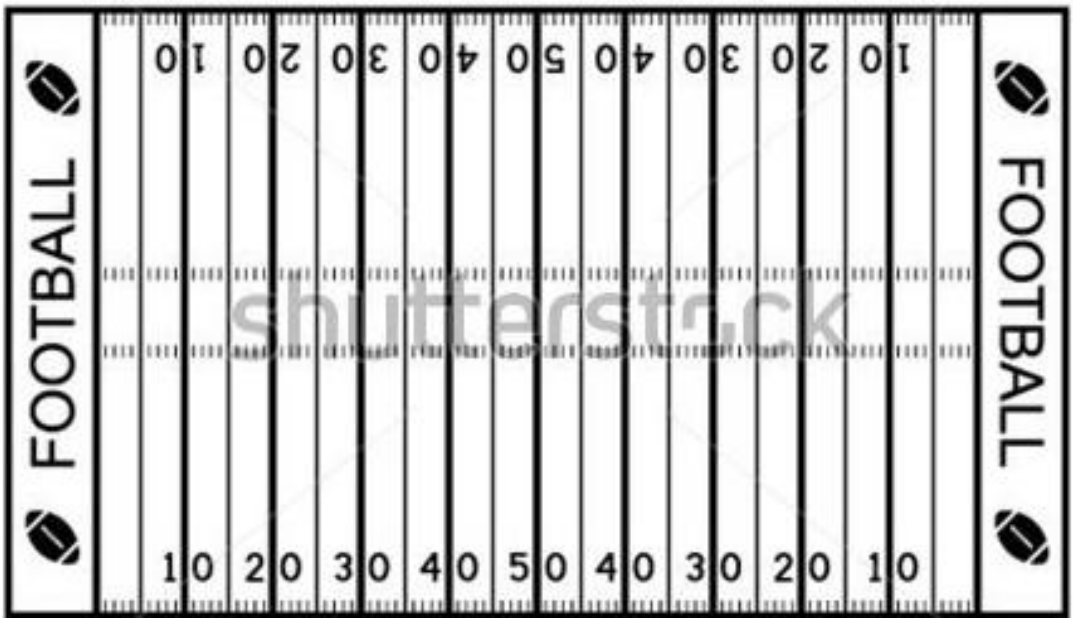
_____

Celestial Sphere:

_____

_____

Procedure:



For the purpose of this activity, the top left of the field goal will represent Polaris

1. Stand on the far end line and sight the top of the field goal by looking through the straw on your astrolabe, record the apparent altitude of Polaris in the data table

2. Move forward to the 10 yard line, record the apparent altitude of Polaris in data table

3. Move forward to the 20 yard line, record data.

4. Move forward to the 30 yard line, record data.

5. Move forward to the 40 yard line, record data.

6. Move forward to the 50 yard line, record data. You will not plot this point on your graph

7. Walk ten steps to the right, record data.

8. Move forward to the 40 yard line, record data.

9. Move forward to the 30 yard line, record data.

10. Move forward to the 20 yard line, record data.

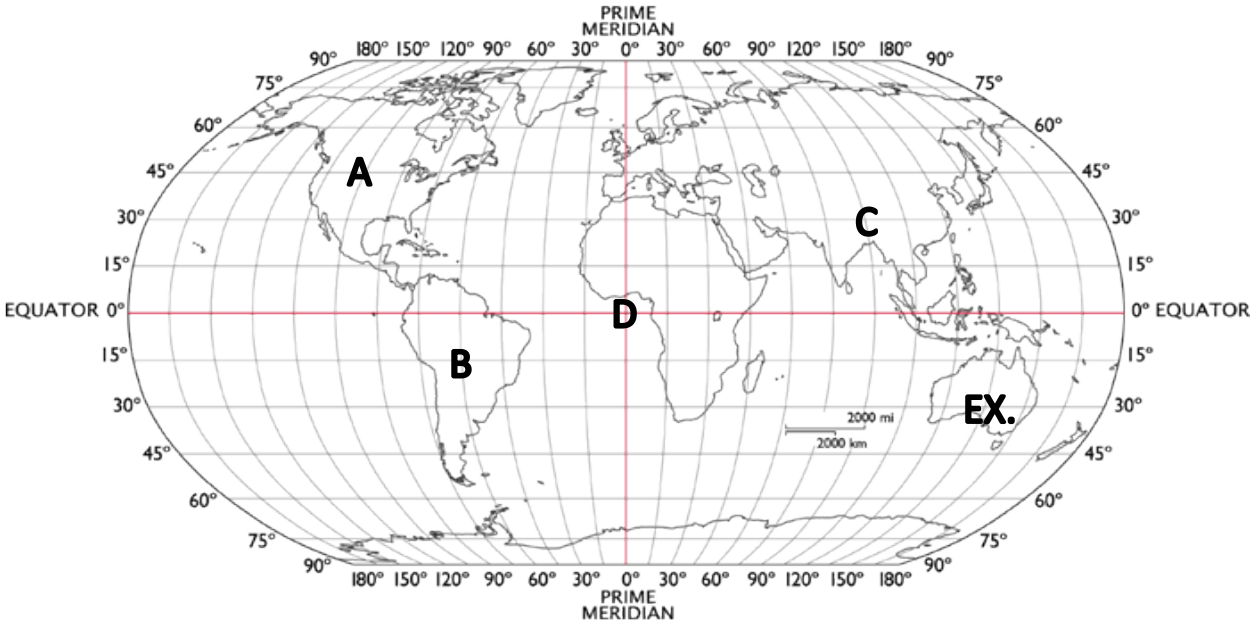
11. Move forward to the 10 yard line, record data.

12. Move forward to the end line. Sight the field goal straight up, record data.

Data:

YARDLINE	ALTITUDE OF POLARIS	LATITUDE OF OBSERVER
FAR ENDLINE		
10		
20		
30		
40		
50		
*50 sideways DO NOT PLOT		
40		
30		
20		
10		
ENDLINE NEAREST POLARIS		

Questions: *Use the map below to answer the questions in complete sentences.*



1. At which locations is Polaris visible in the night sky? _____ , _____ and _____
2. Which location is Polaris NOT visible? Why?

3. Fill in the latitude and longitude coordinates for locations A-D.

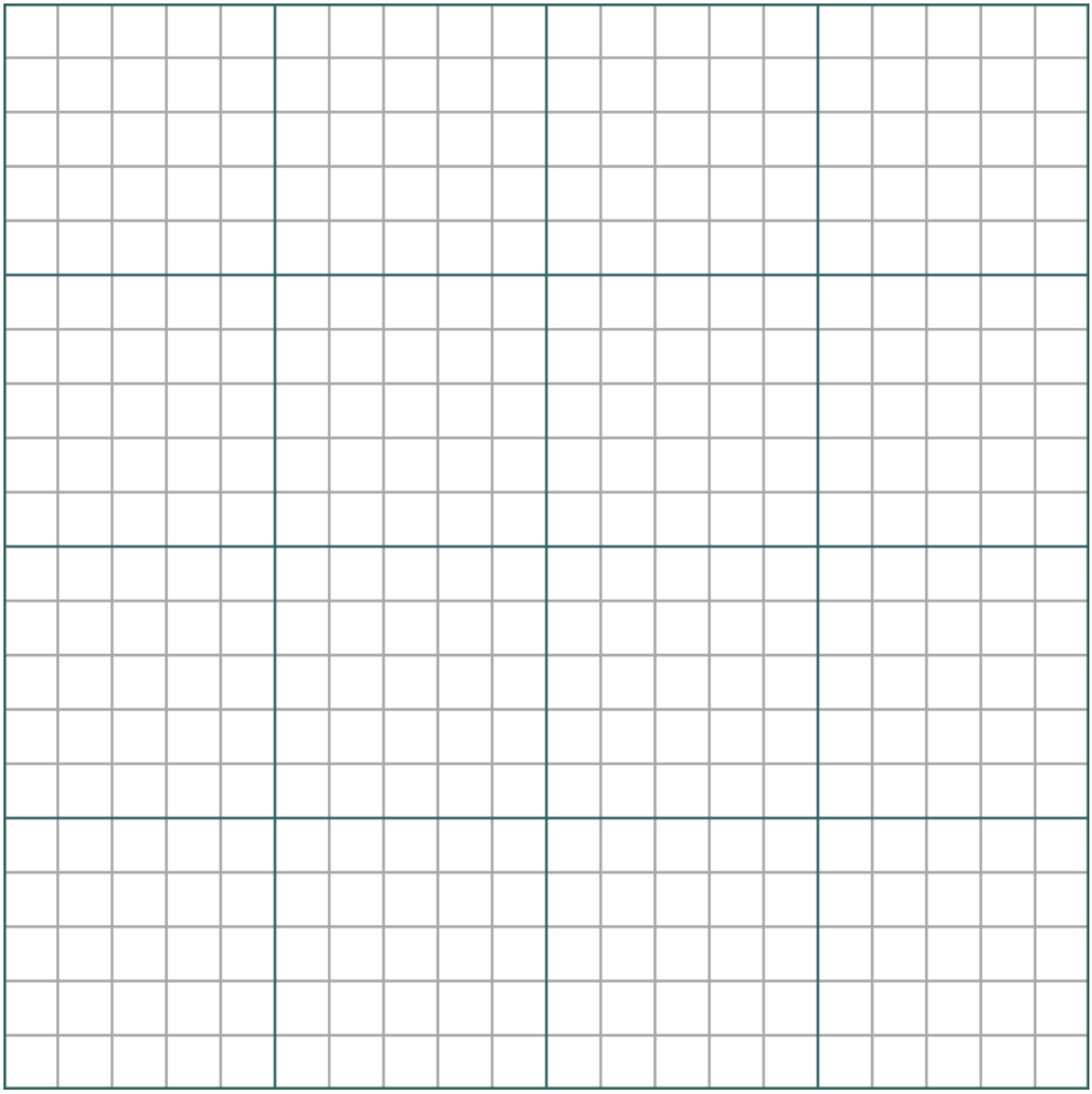
Location	LATUTUDE	LONGITUDE	COORDINATES
Example	30°S	135°E	30°S, 135°E
A			
B			
C			
D			

DANZ

Analysis: Line Graph: Graph the relationship between latitude of the observer and altitude of Polaris.

TITLE: _____

DEPENDENT VARABLE: _____



INDEPENDENT VARIABLE: _____

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