



Deed Plotting

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Barry Savage PLS

Manager Survey Products

Tennessee Valley Authority

Phone: 423-667-4711

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Topics to be Covered

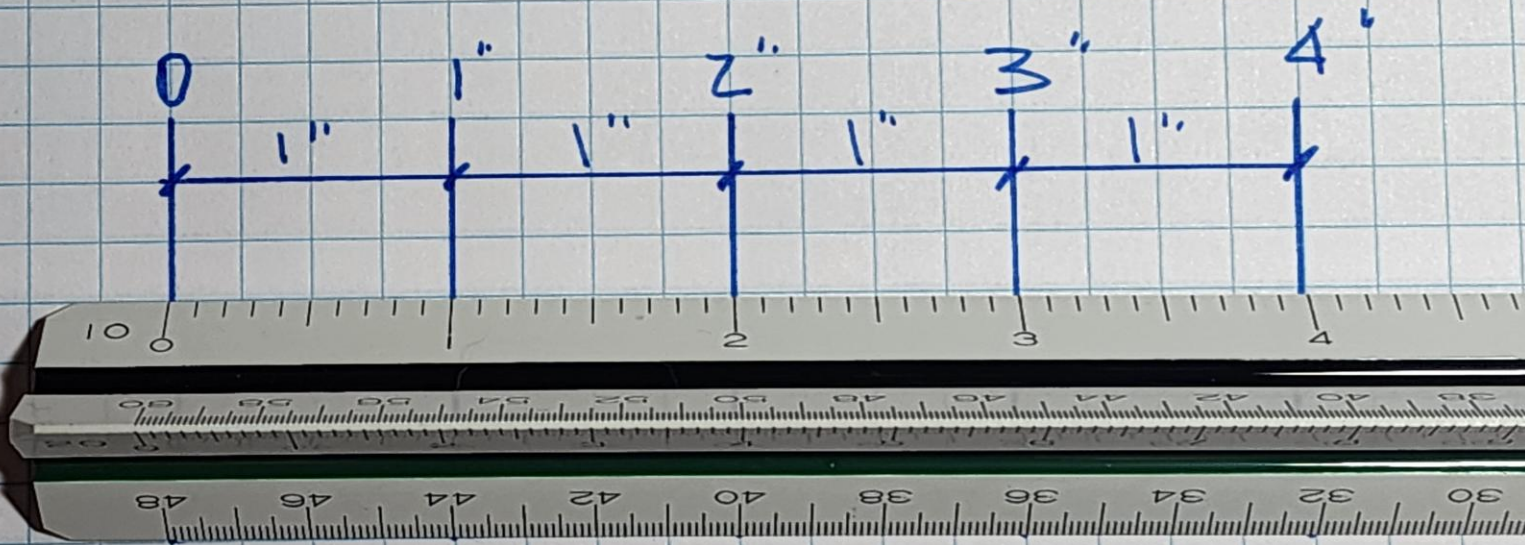
- Measuring Distance and Scale
- Measuring Bearings
- Plotting Basics
- Closure
- Understanding Precision
- Software

Distance

SCALING

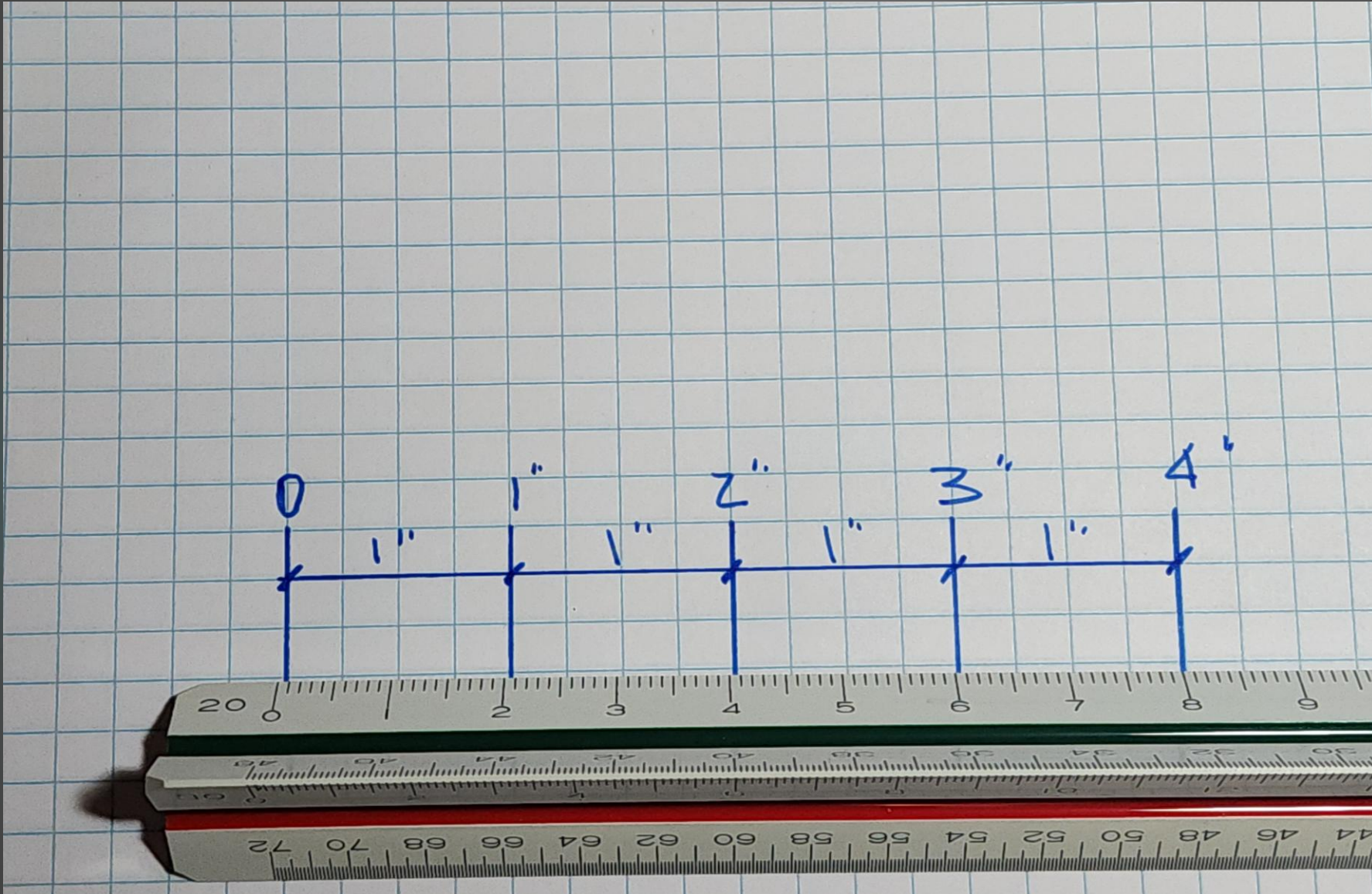
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1"=10', 1"=100', 1"=1000'

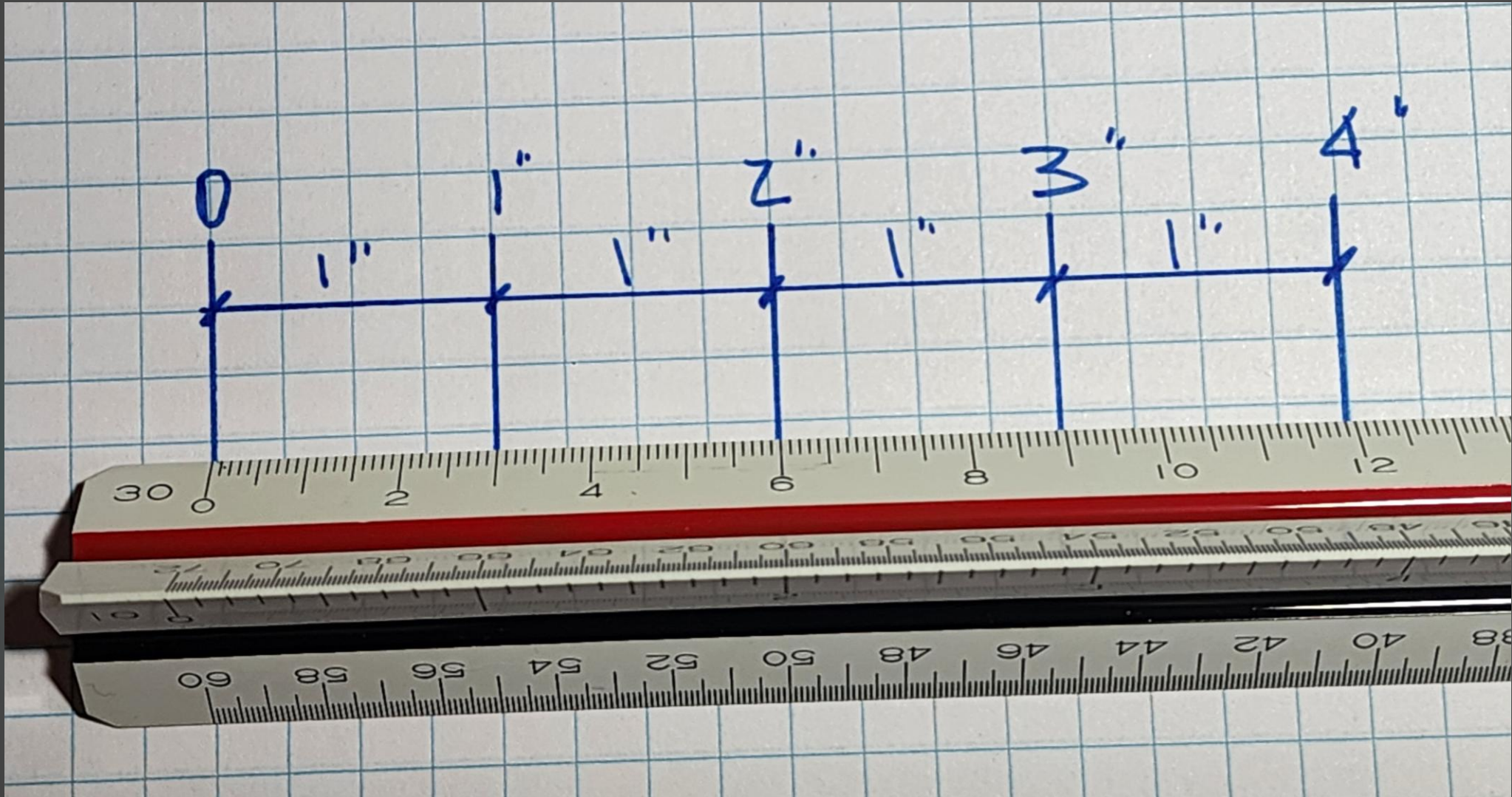


1"=20', 1"=200', 1"=2000'

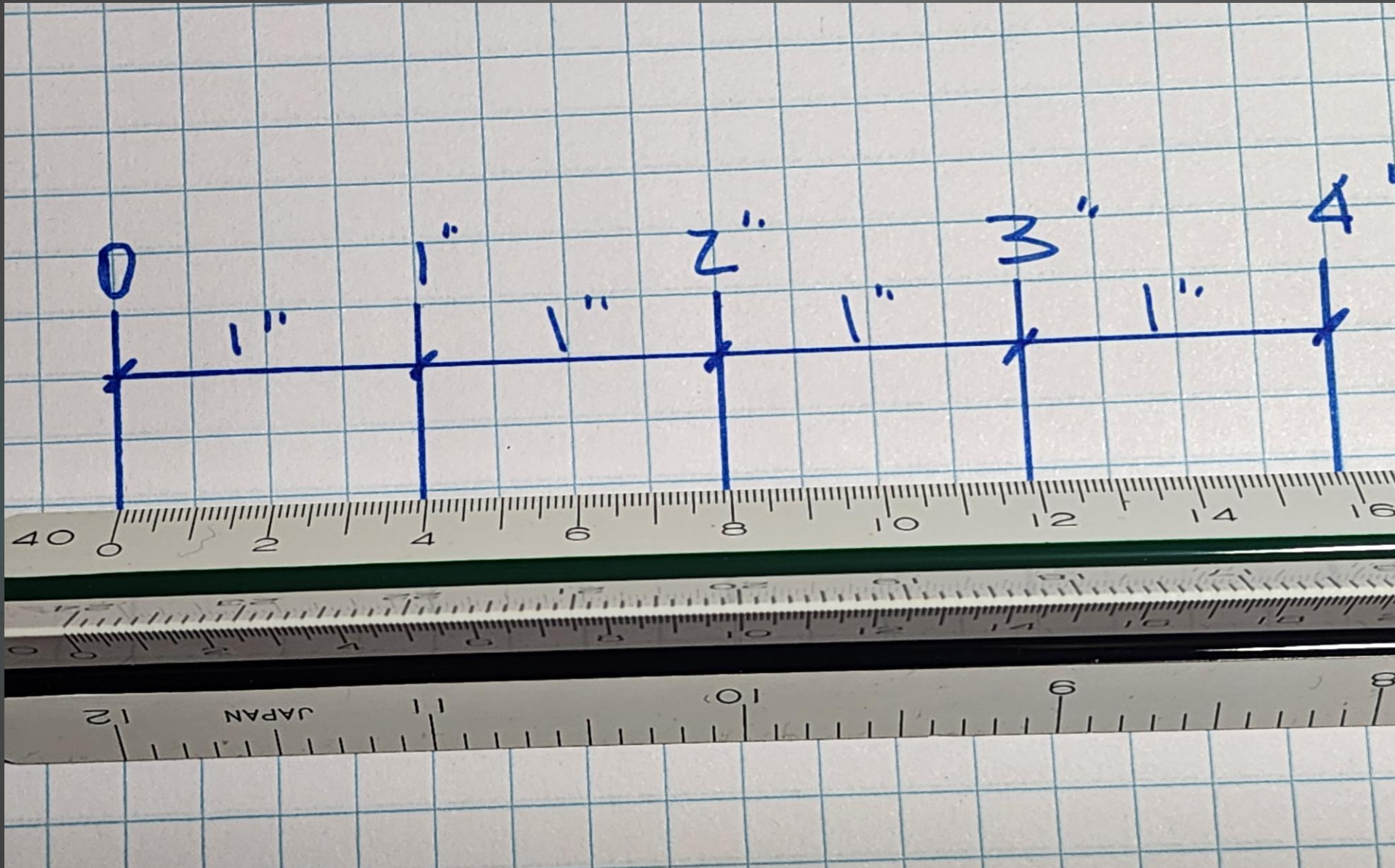
6

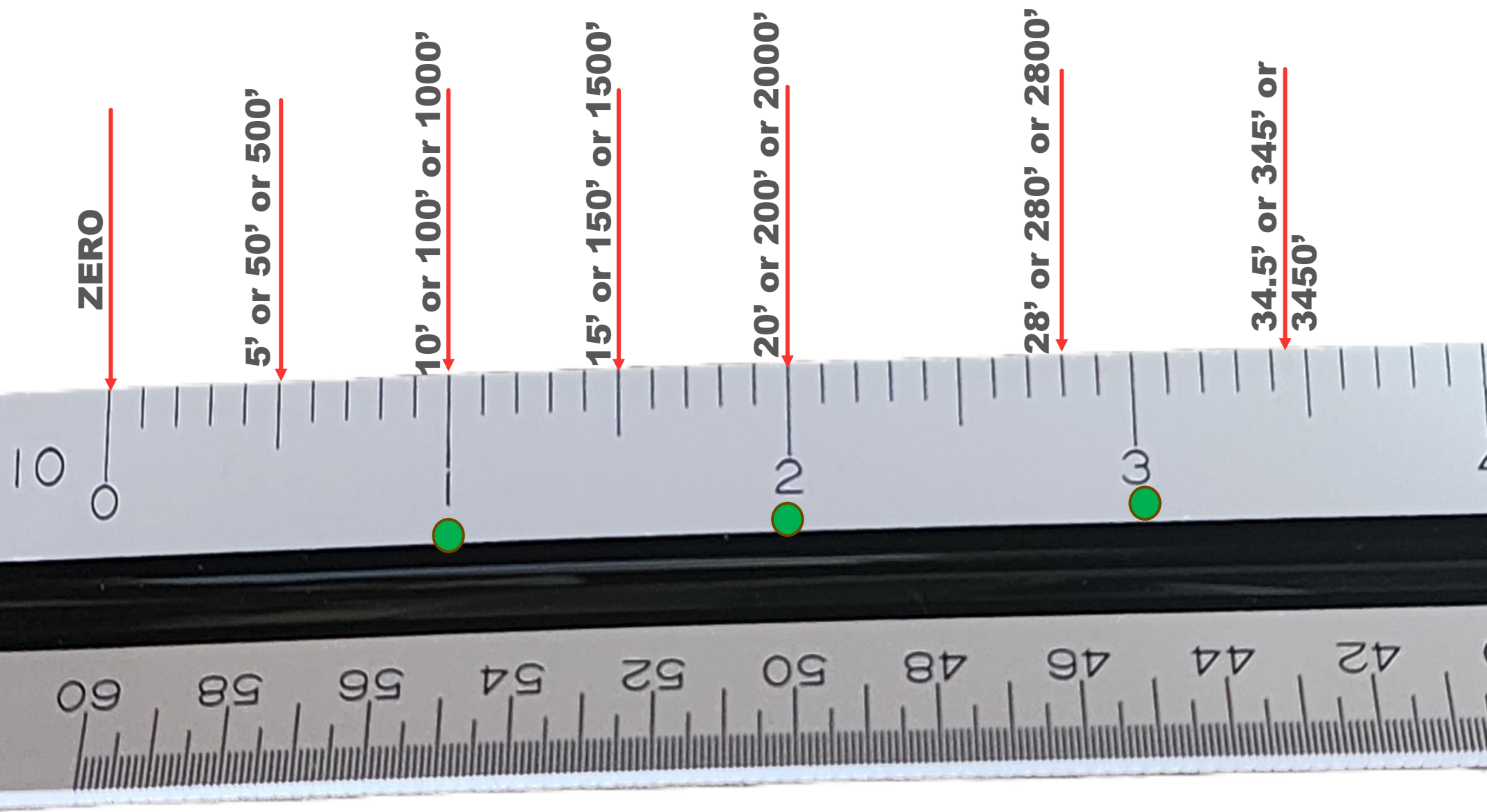


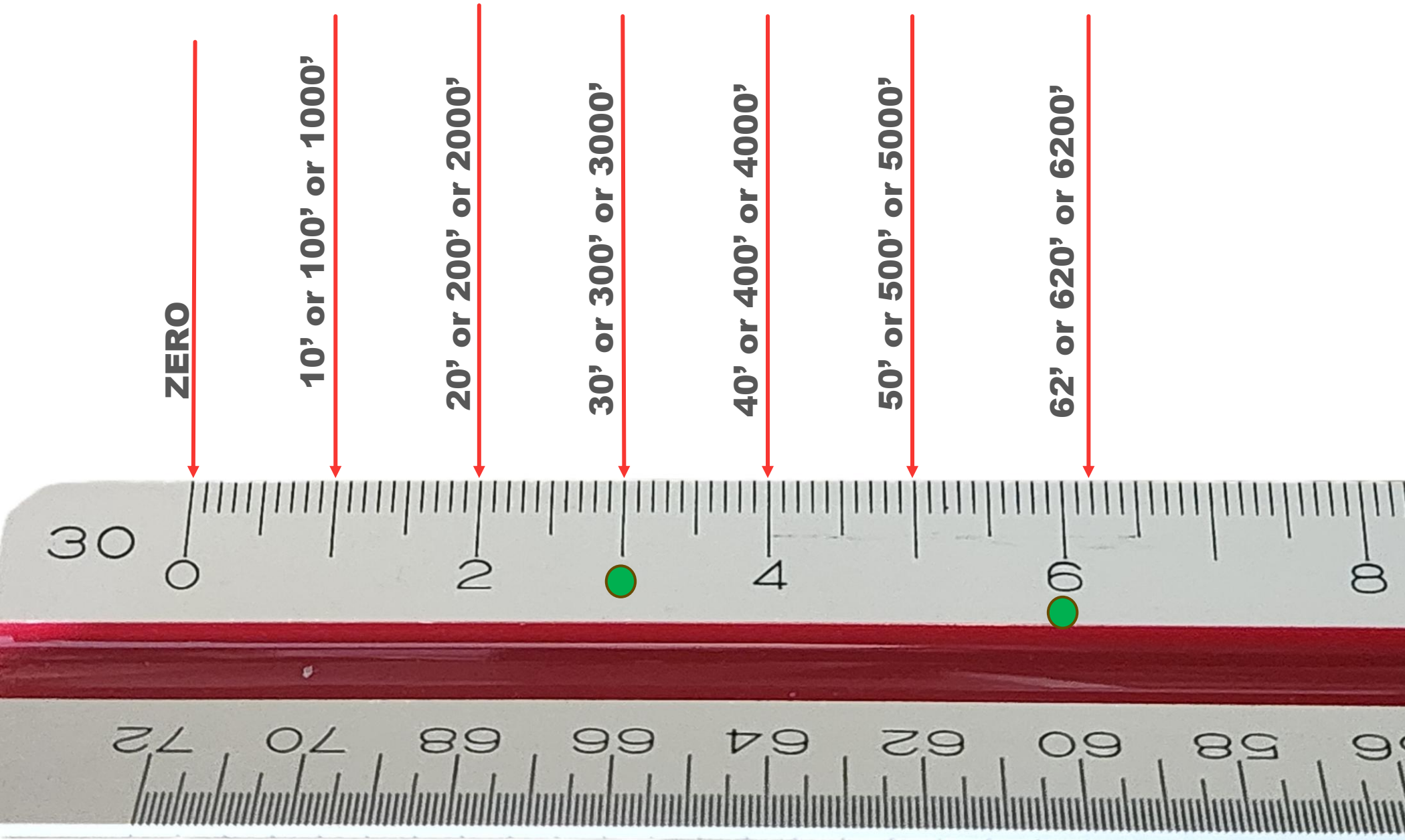
1"=30', 1"=300', 1"=3000'



1"=40', 1"=400', 1"=4000'





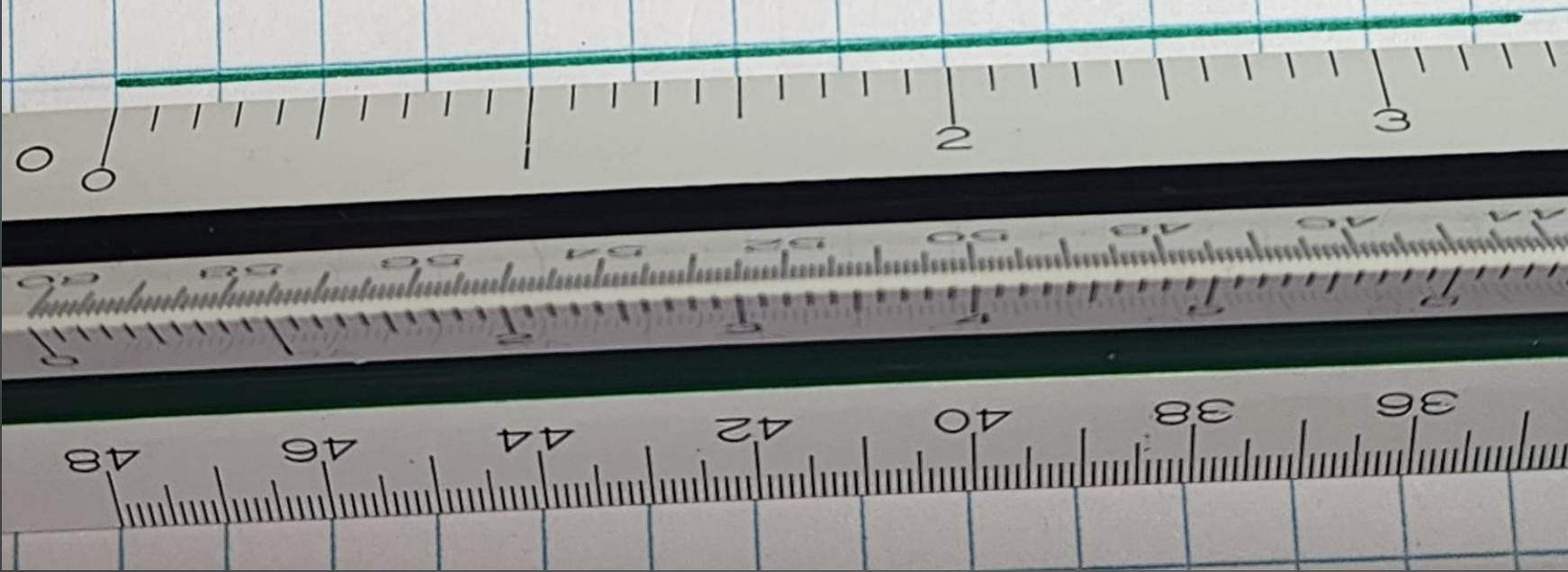




1" = 10' 33.5'

1" = 100' 335'

1" = 1000' 3350'



1"=20' 67'

1"=200' 670'

1"=2000' 6700'

1"=30' 100'
1"=300' 1000'
1"=3000' 10,000'

1"=100' Find 410'

1"=1000' Find 410'



1"=1000'



1"=100'



1"=100' Find 410'

1"=1000' Find 410'



1"=200' Find 650'

1"=2000' Find 650'



1"=2000'

1"=200'



1"=200' Find 650'
1"=2000' Find 650'



1"=300' Find 900'

1"=3000' Find 900'



1"=3000'

1"=300'



1"=300' Find 900'

1"=3000' Find 900'



1"=50' Find 220'

1"=5000' Find 220'



1"=50' Find 220'

1"=5000' Find 220'

1"=5000'



1"=50'



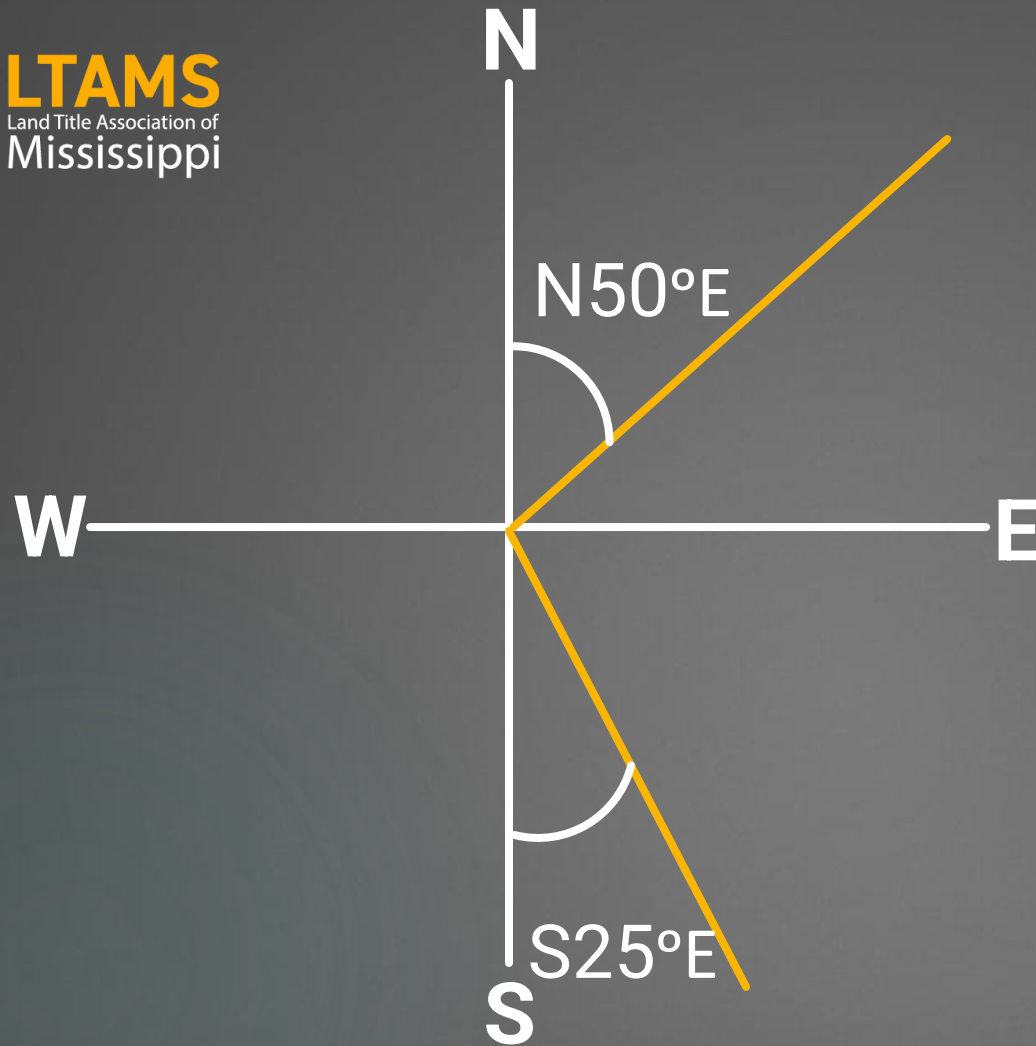
1"=50' Find 220'

1"=5000' Find 220'

Bearings

BASICS

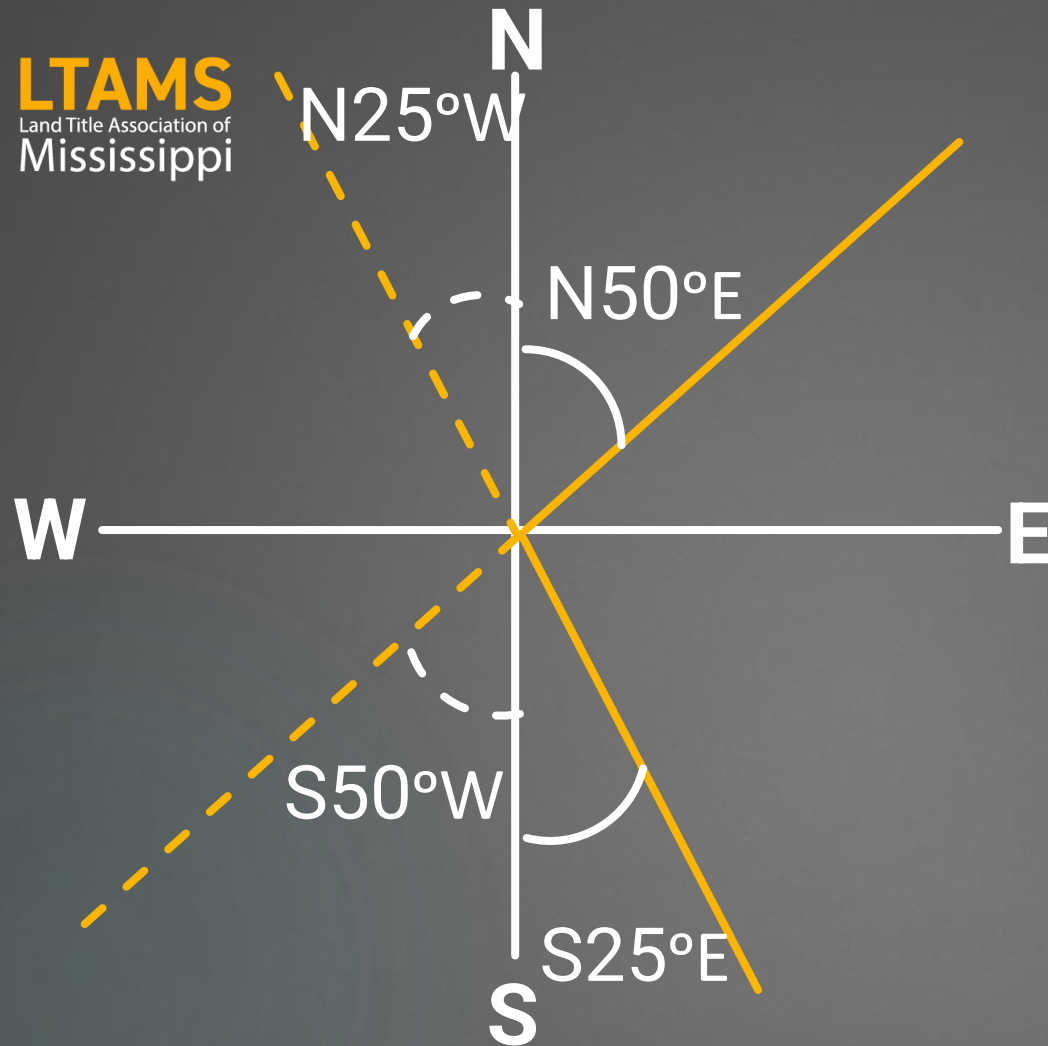
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- BEARINGS ARE MEASURED FROM NORTH OR SOUTH
- BEARINGS ARE NEVER GREATER THAN 90°
- SOME OLDER DEEDS MEASURE FROM EAST OR WEST

Bearings

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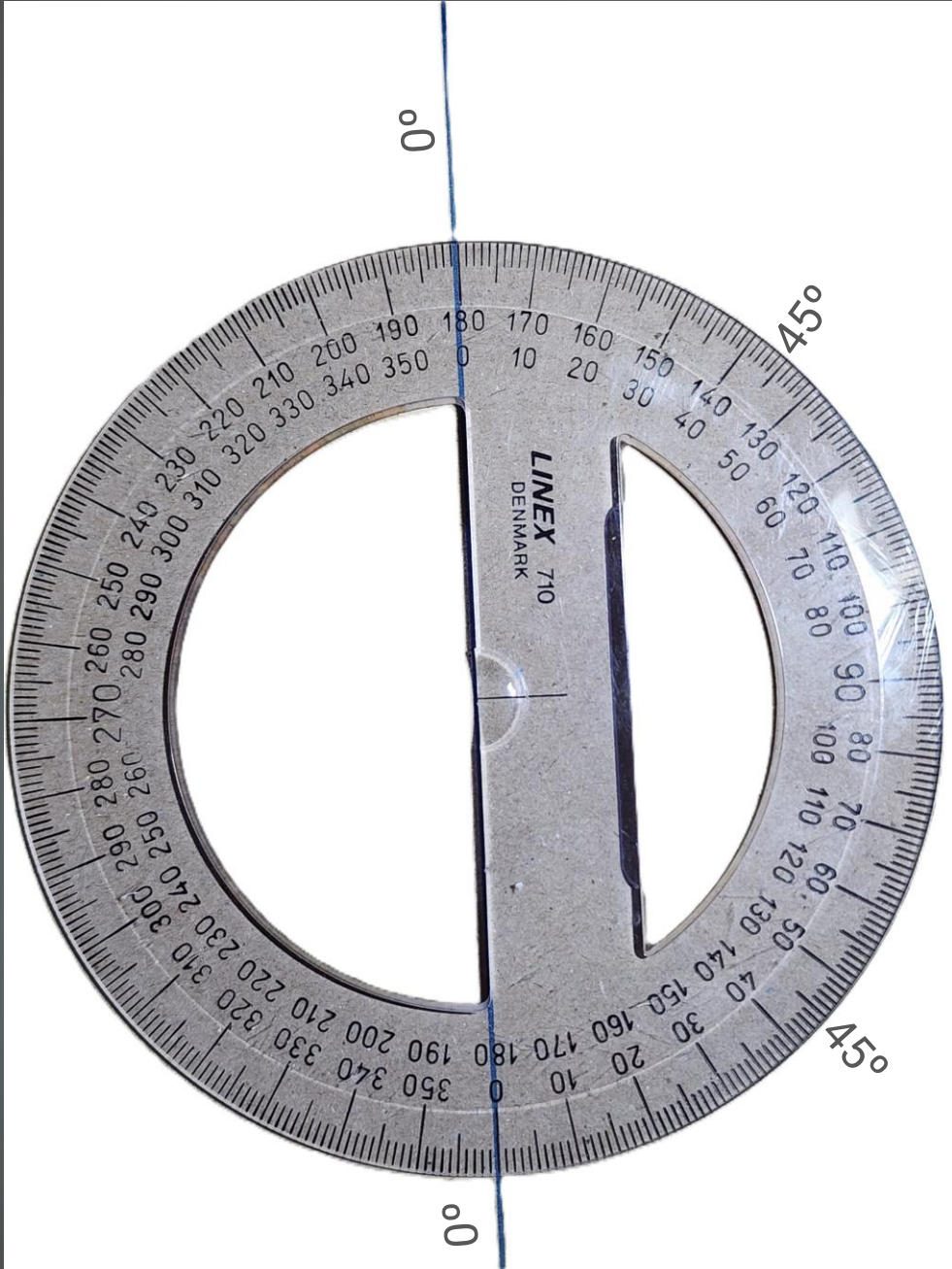
- BACK BEARINGS ARE LINES IN THE OPPOSITE DIRECTION
- THE DIRECTION OF THE LINE IS BASED ON THE DIRECTION OF TRAVEL

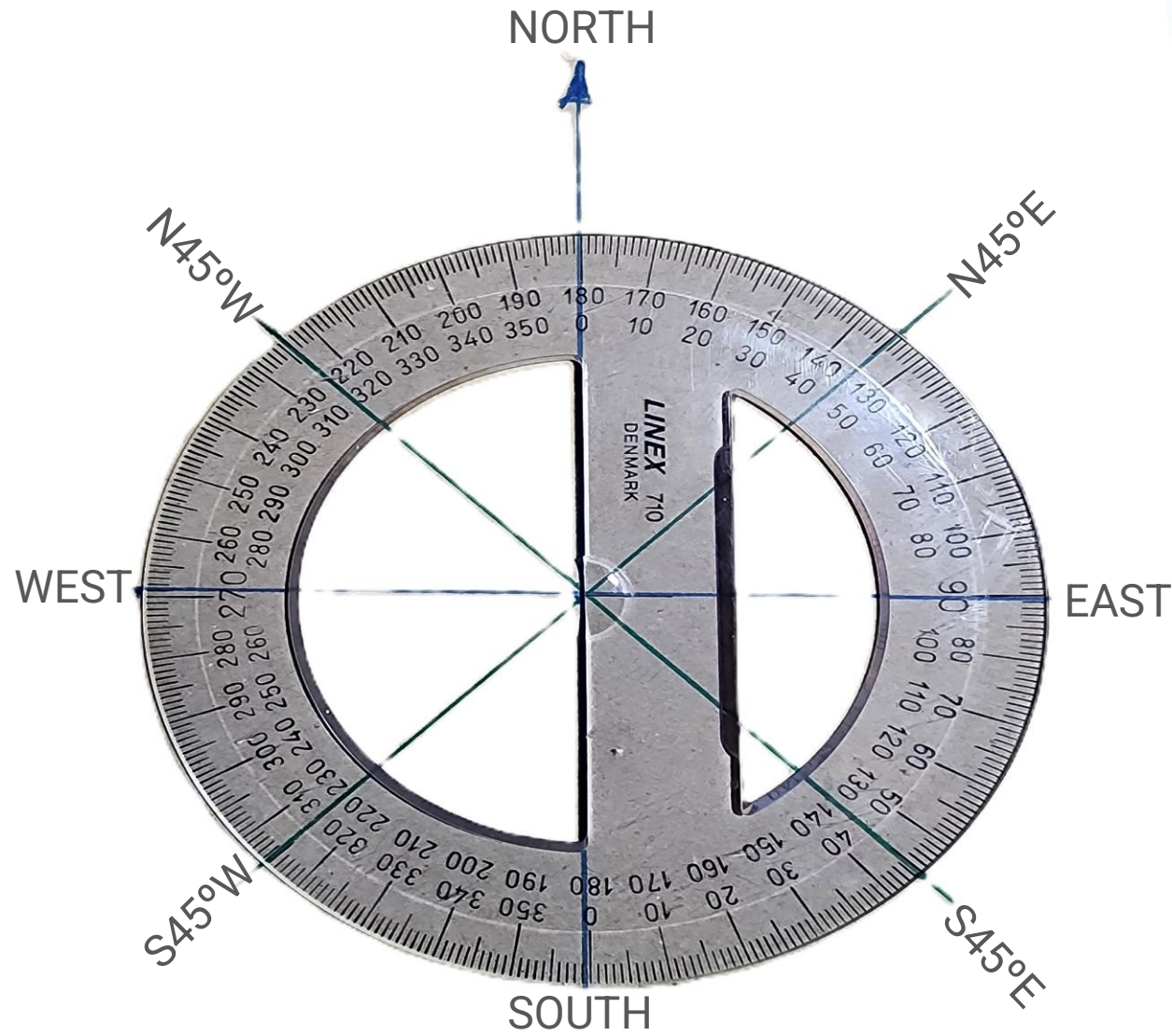
Bearings

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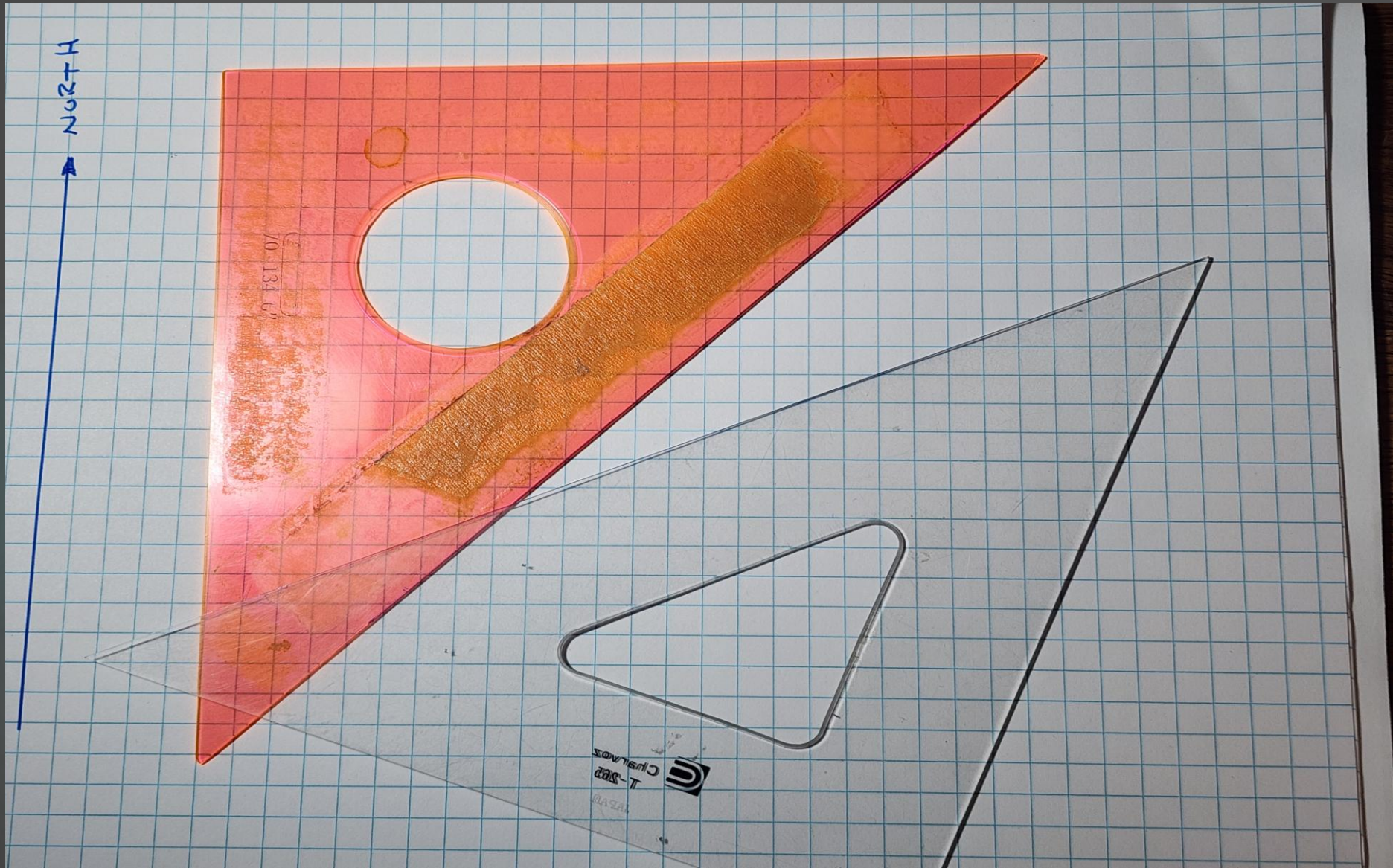
Compass

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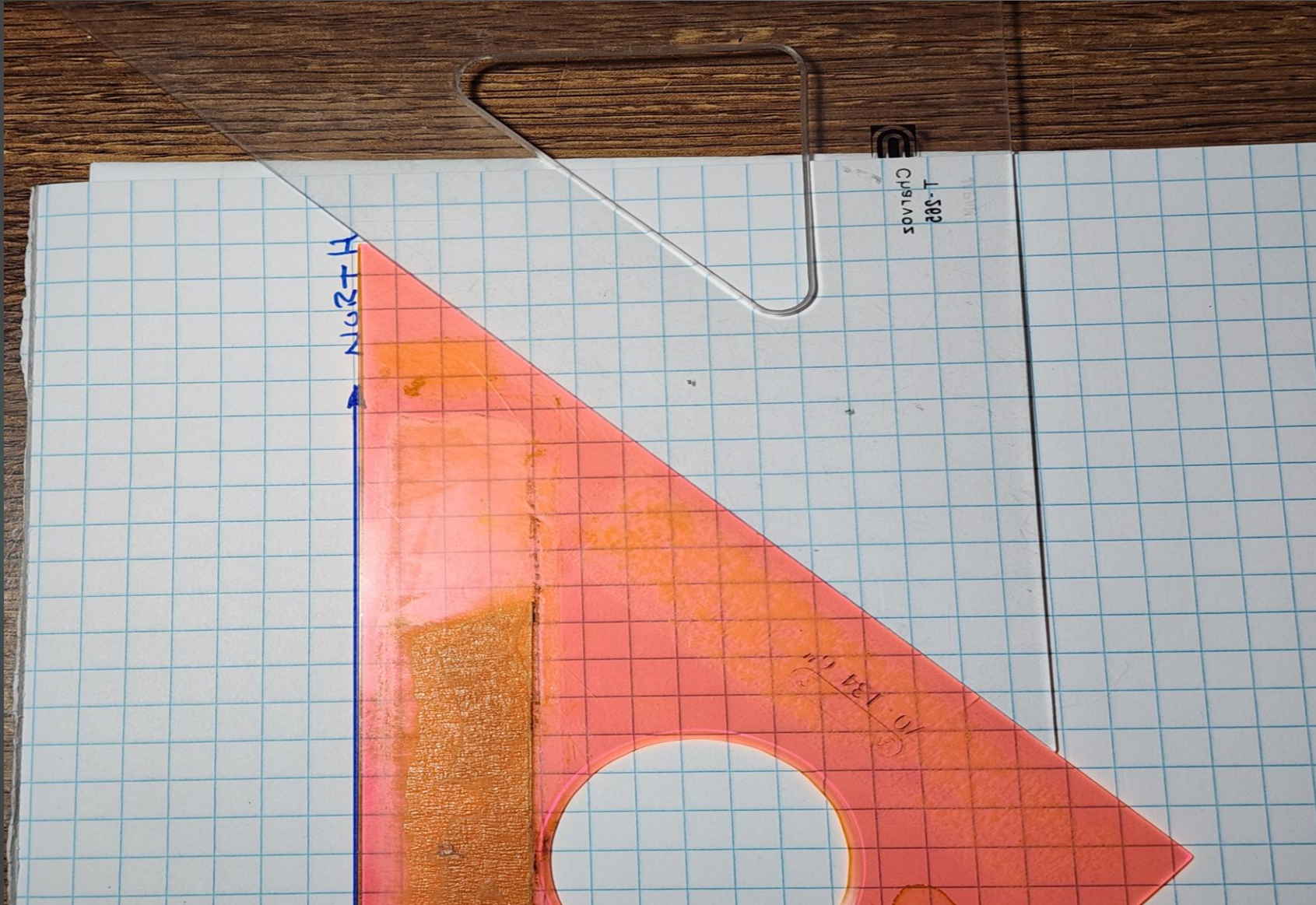


COPY NORTH



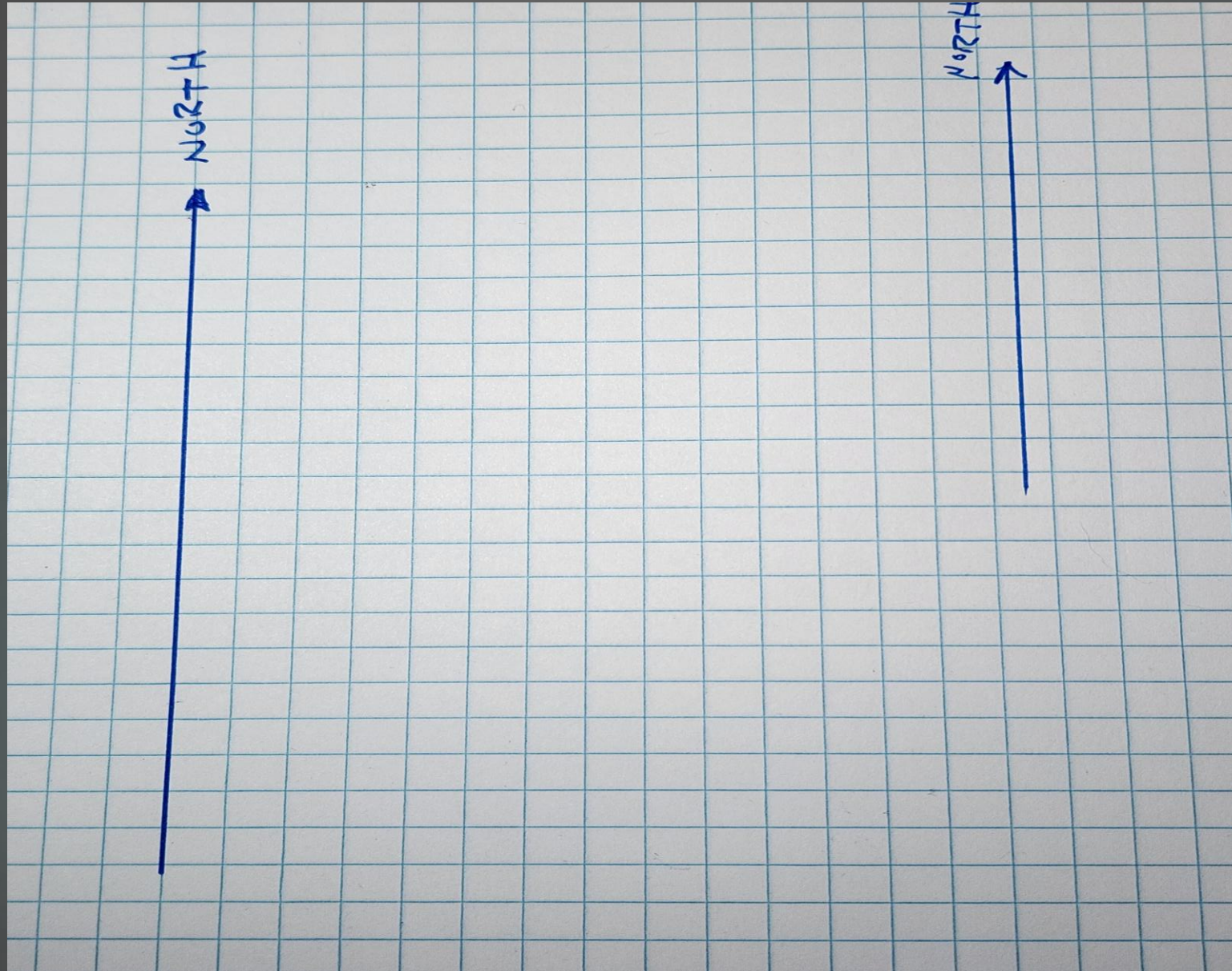
COPY NORTH

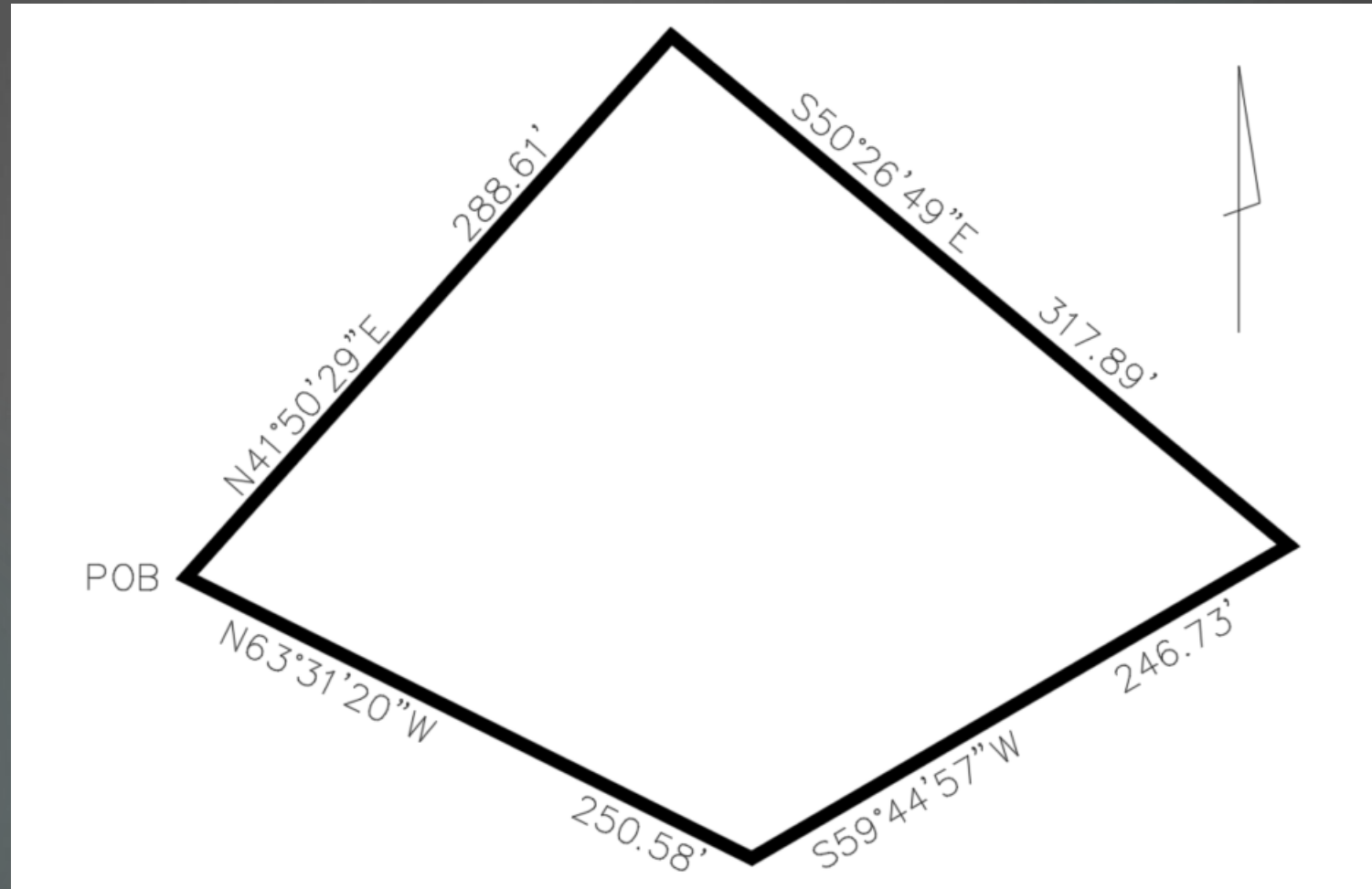
30



COPY NORTH

31





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Plotting

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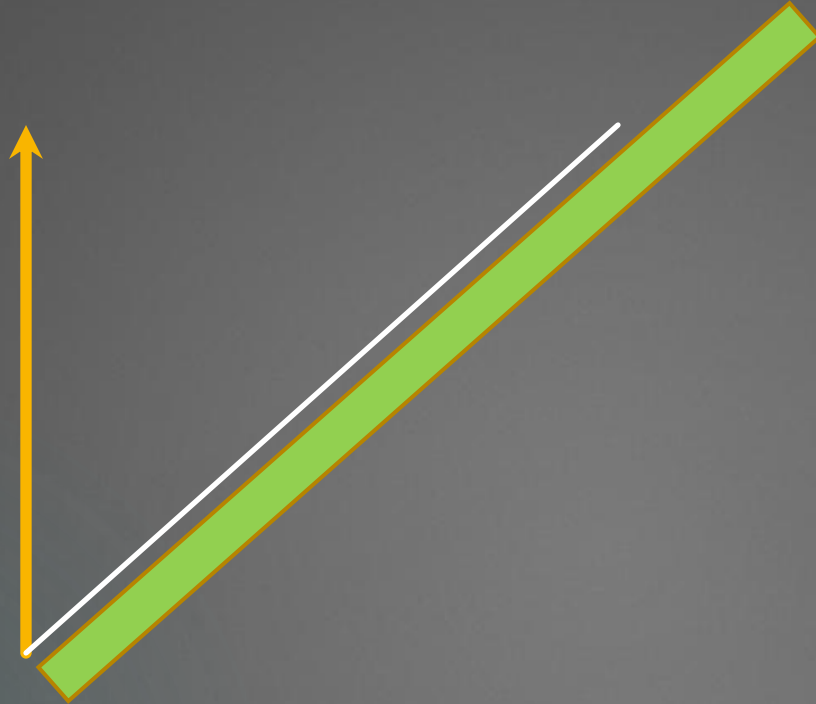
Establish a direction for North on the page.

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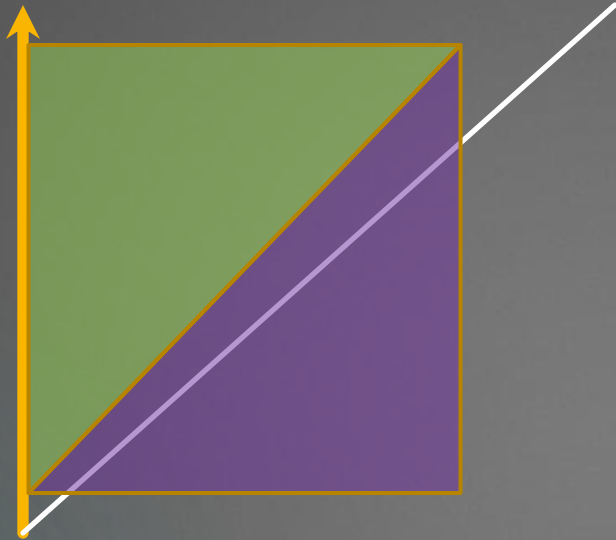
Place a protractor at the end of the North line and measure the bearing from the North/South reference direction.

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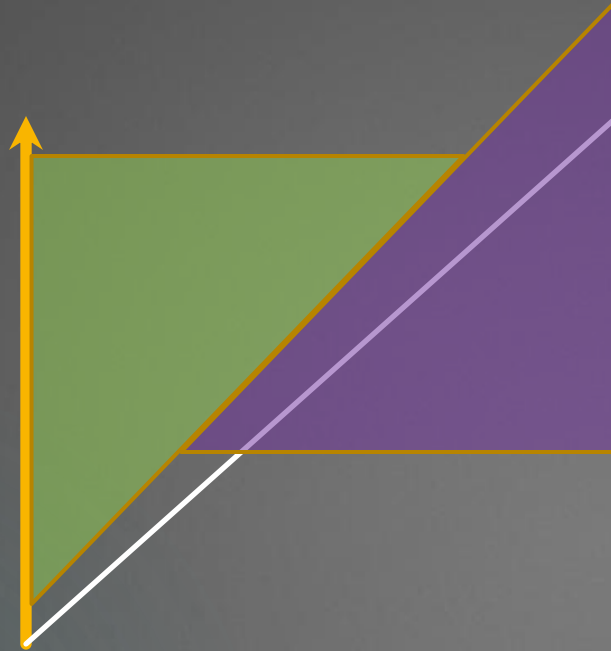
Measure the distance of the line.

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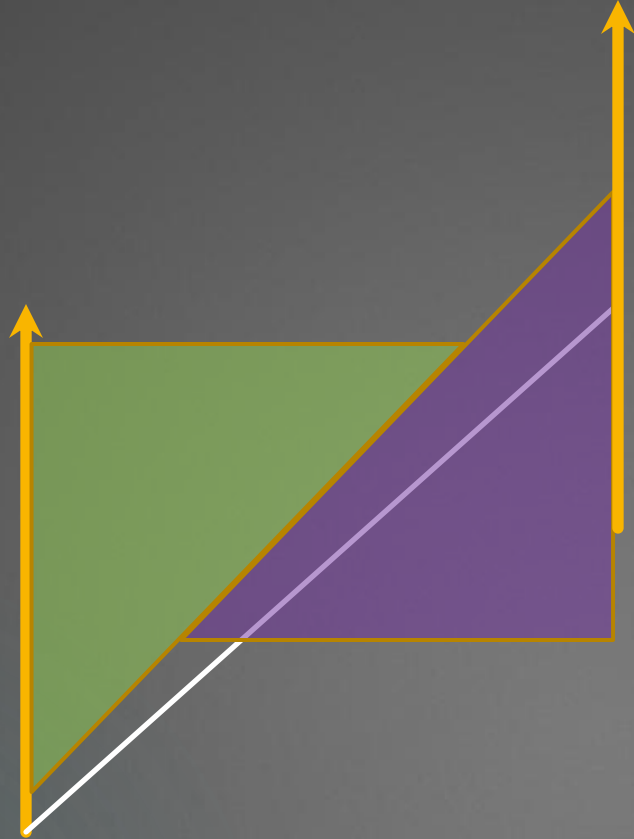
If necessary the direction for North can be transferred to the next point using two triangles....

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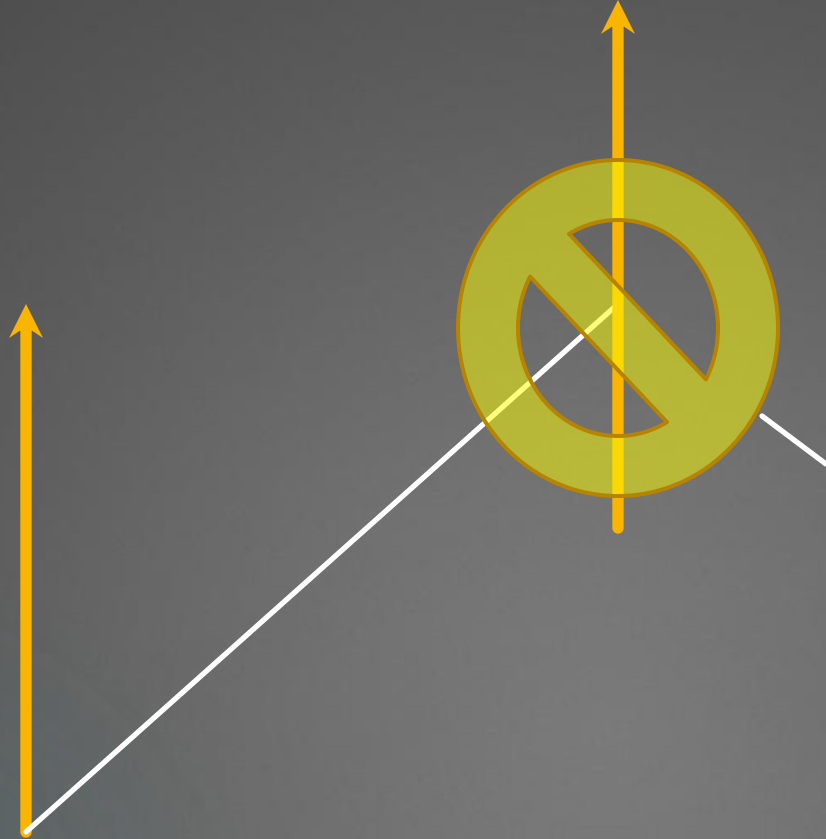
Just by sliding one to create an edge parallel with the North line.....

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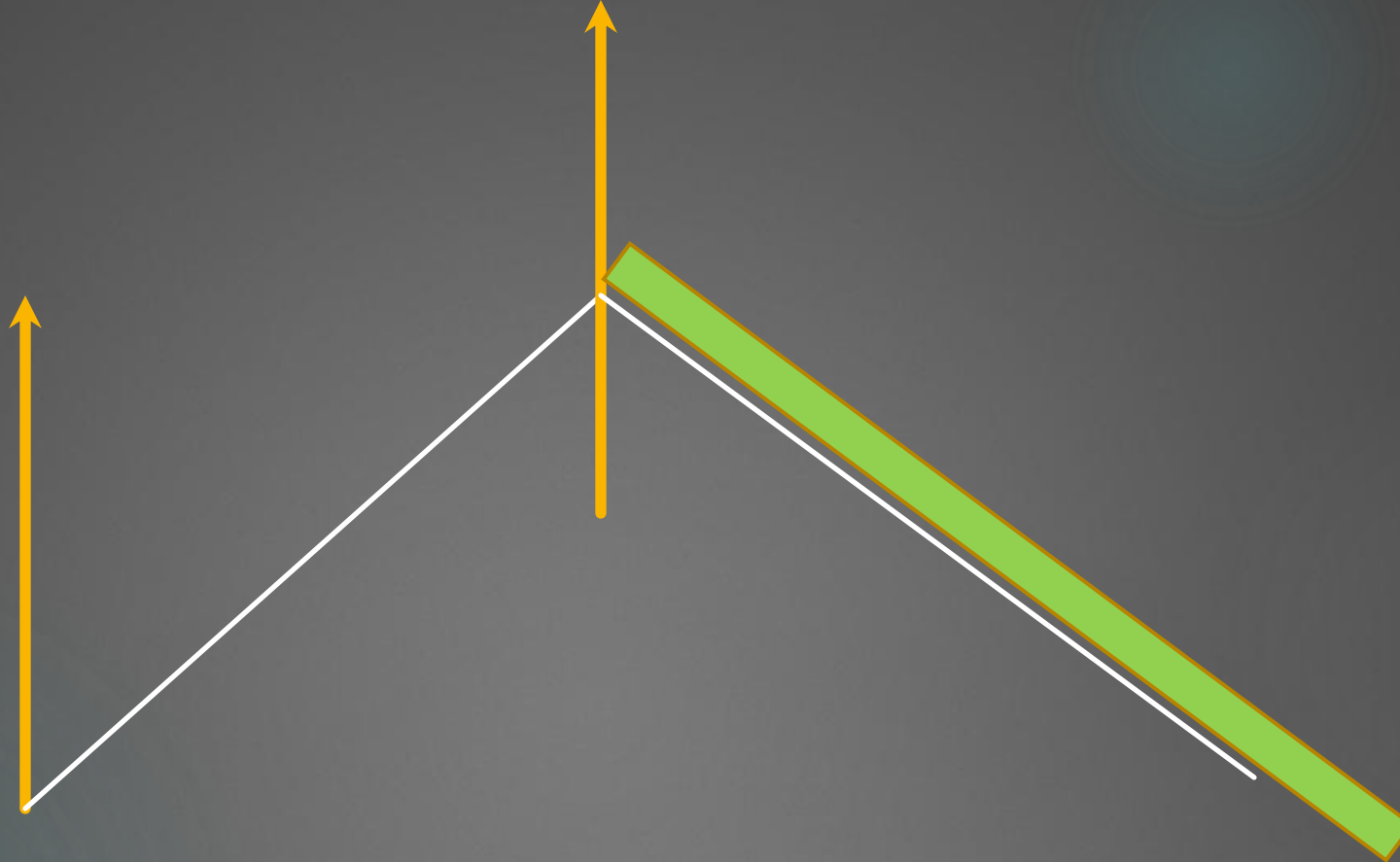
Then a new North reference can be established.

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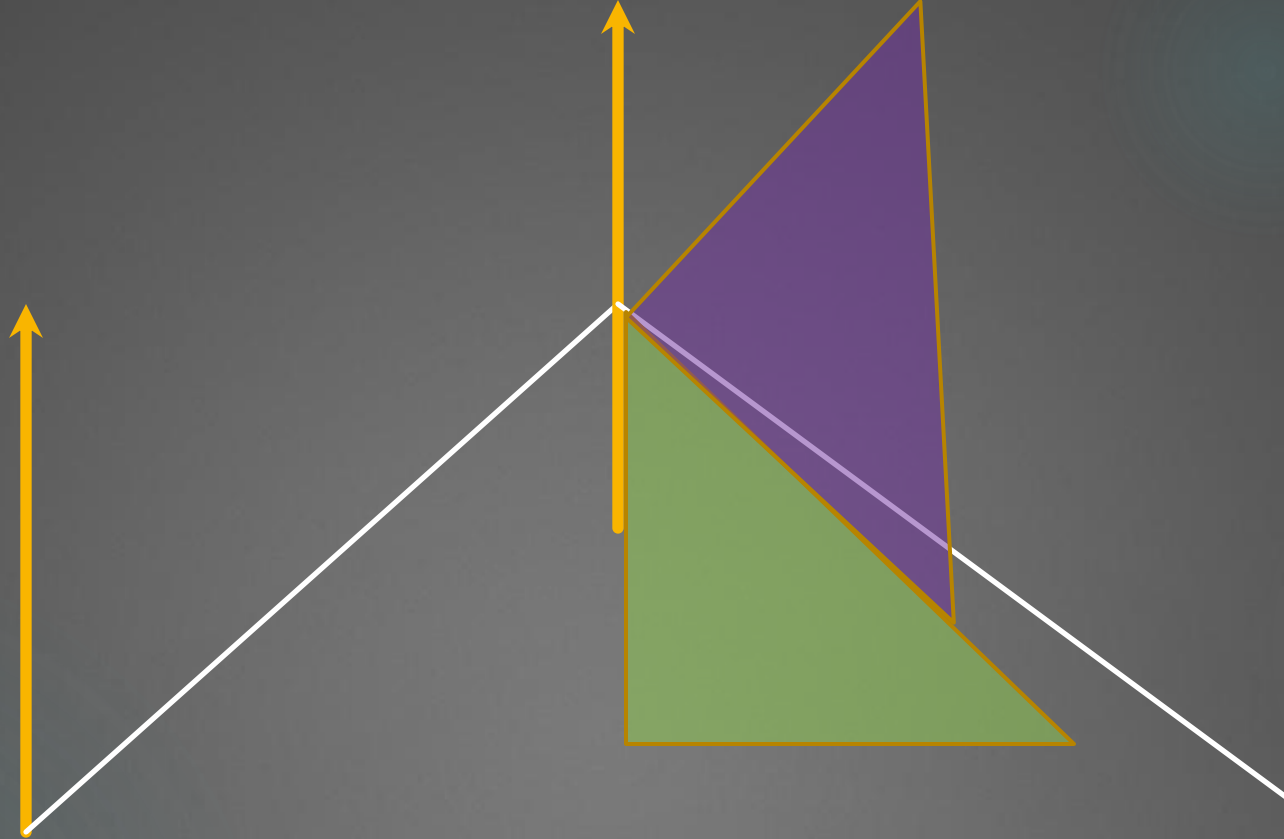
The protractor is placed at the end of the line and the bearing is measured again.

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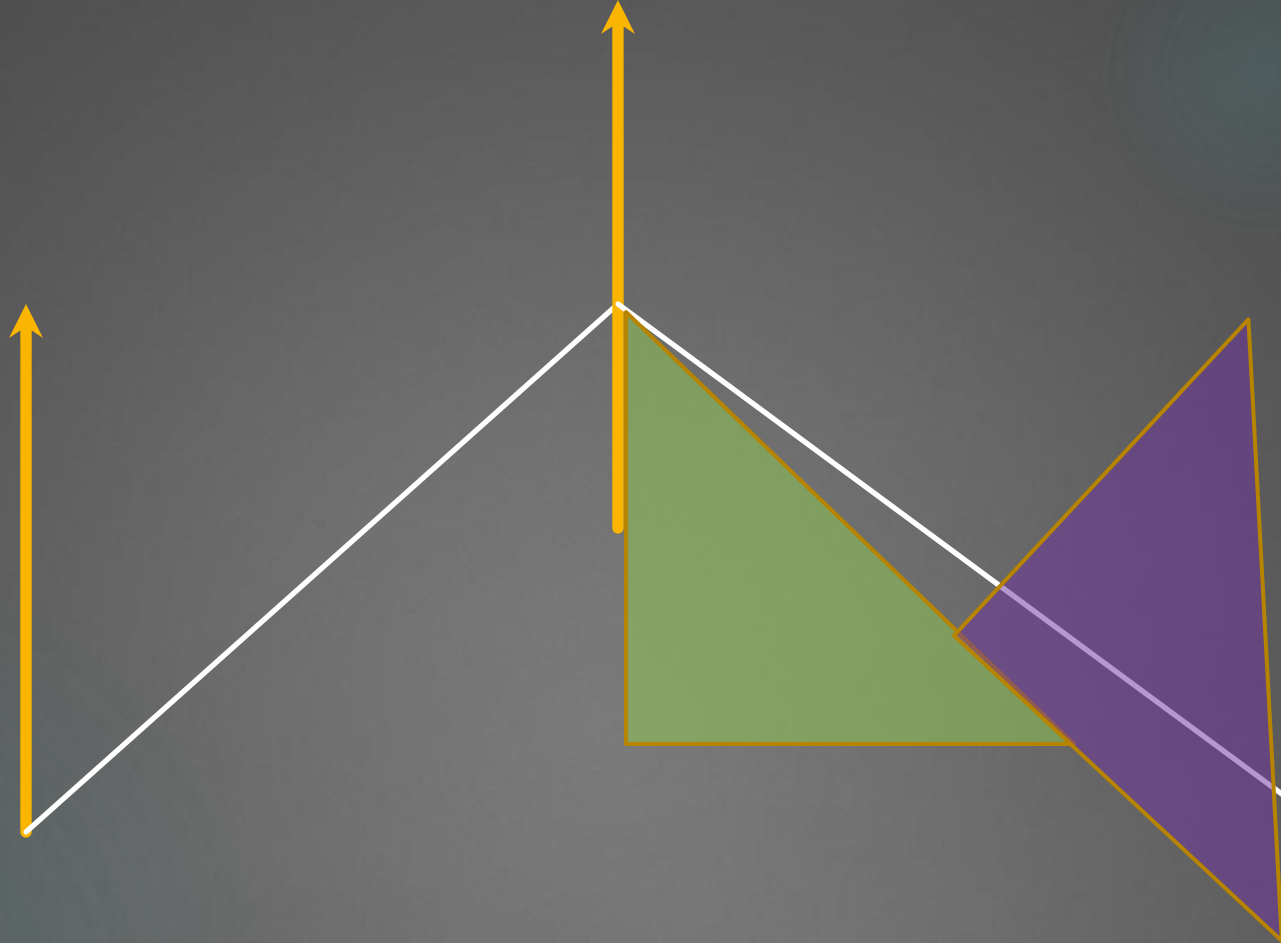
The distance of this line is measured.

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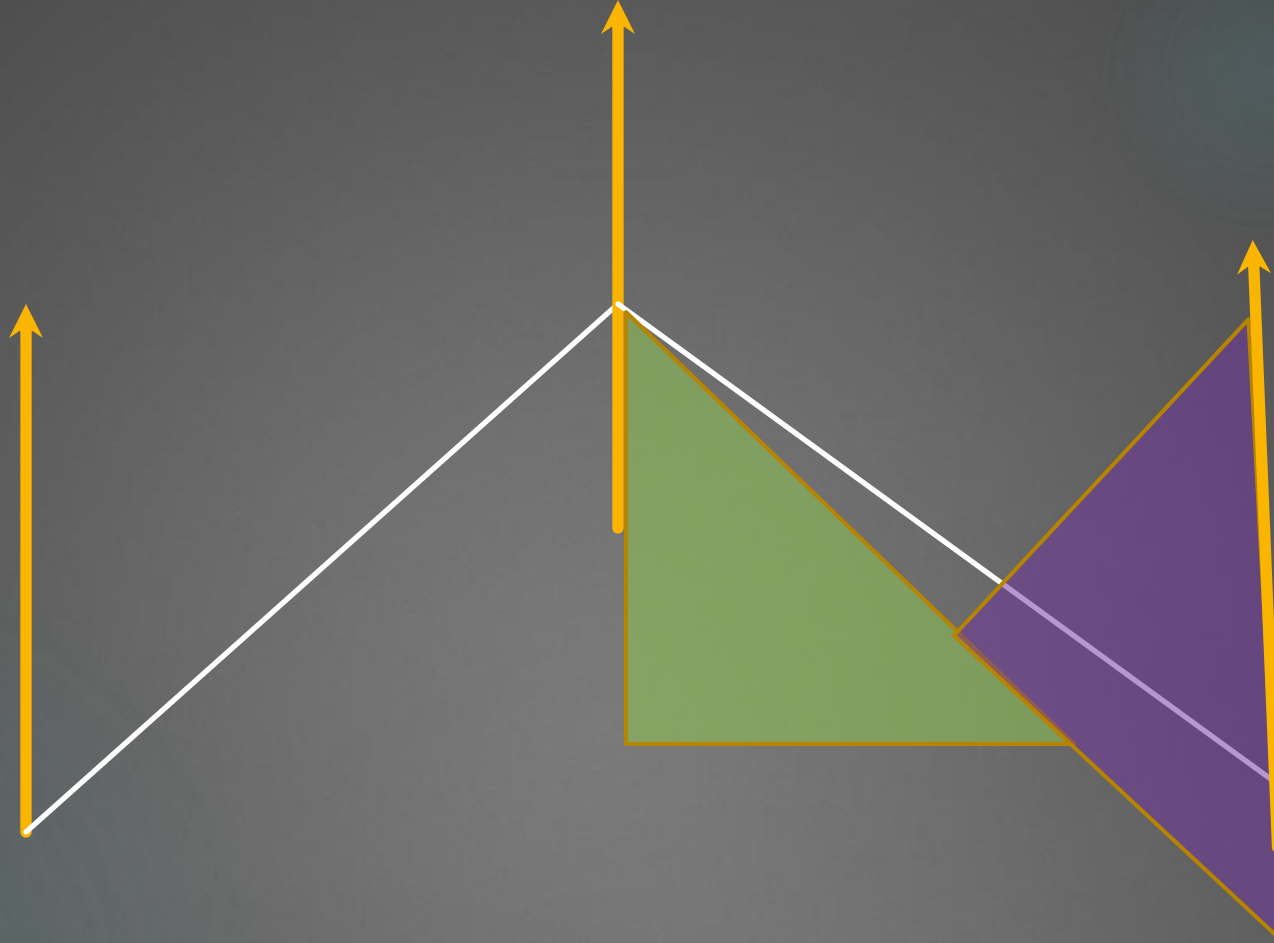
The North referenced is reestablished if necessary

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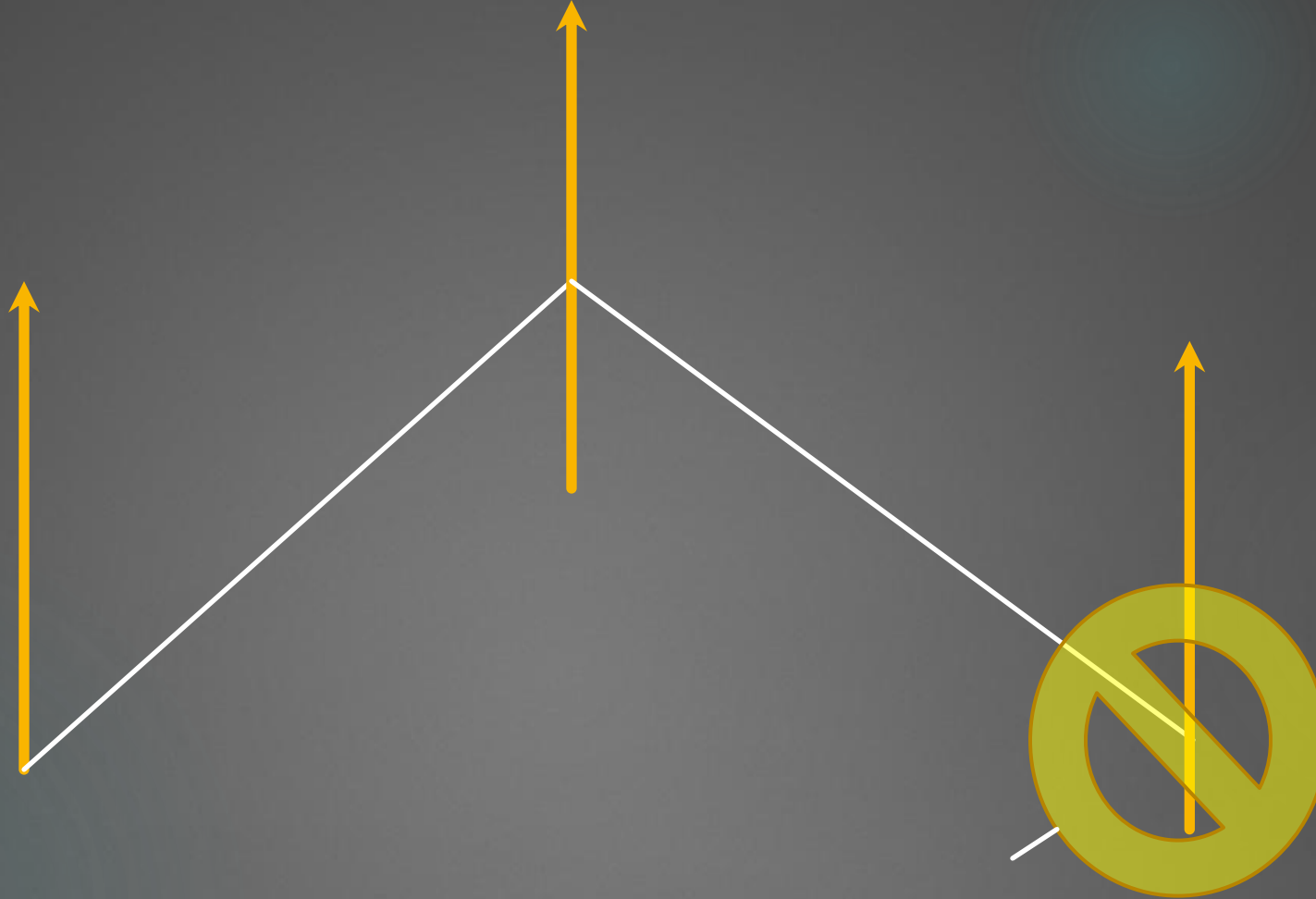
Once again a parallel edge is created.

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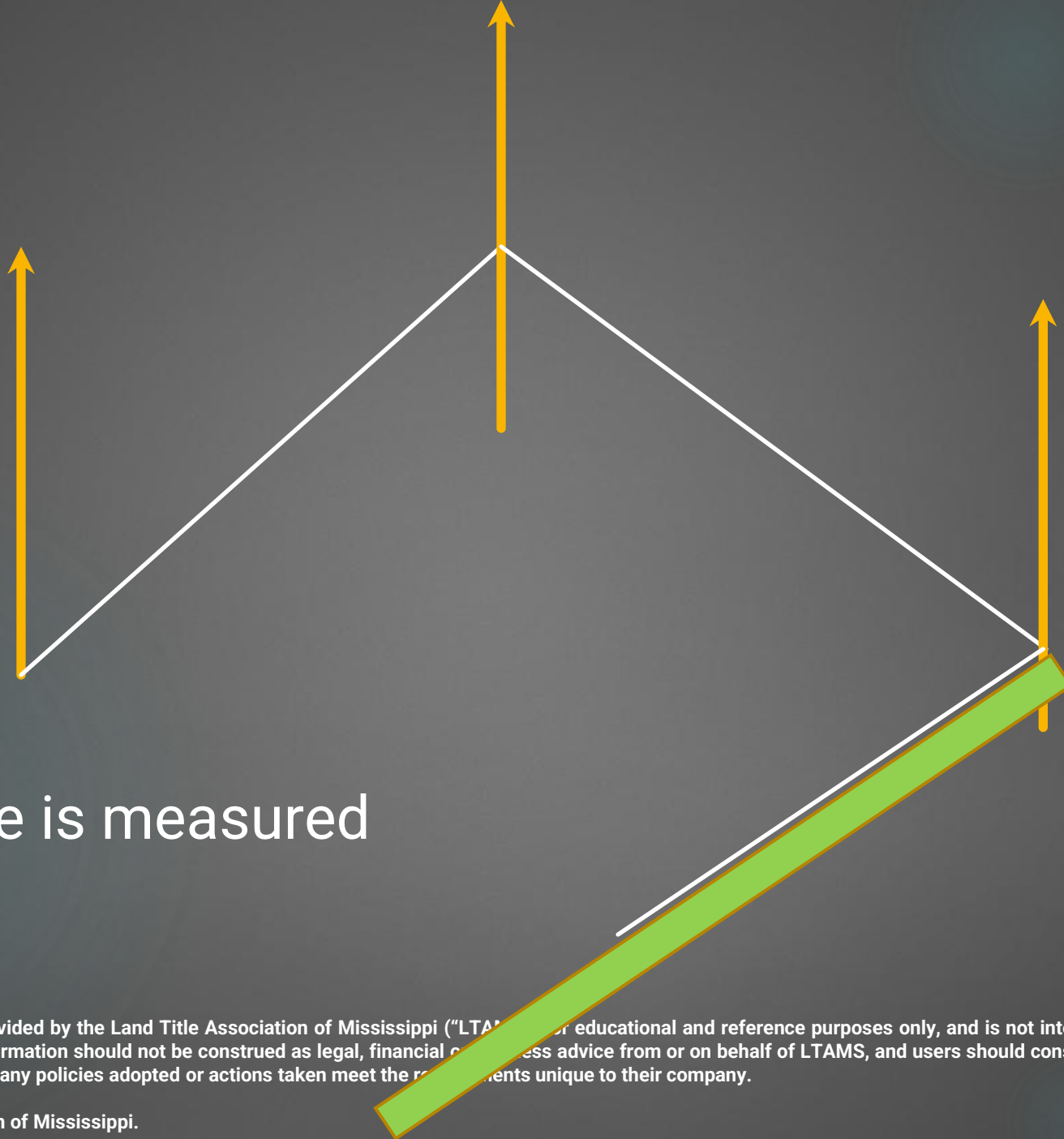
A new North reference is drawn.

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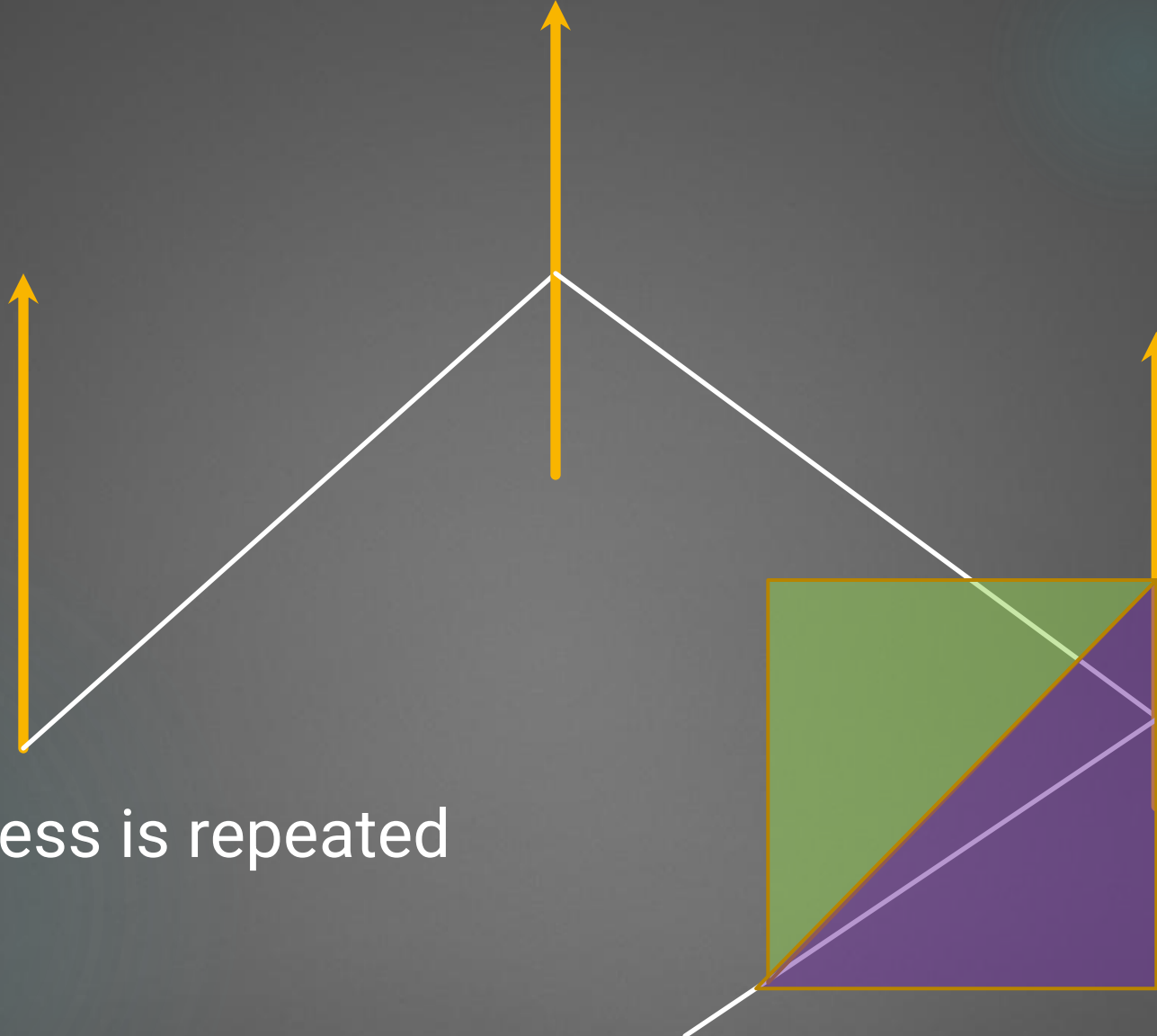
The bearing is measured with the protractor

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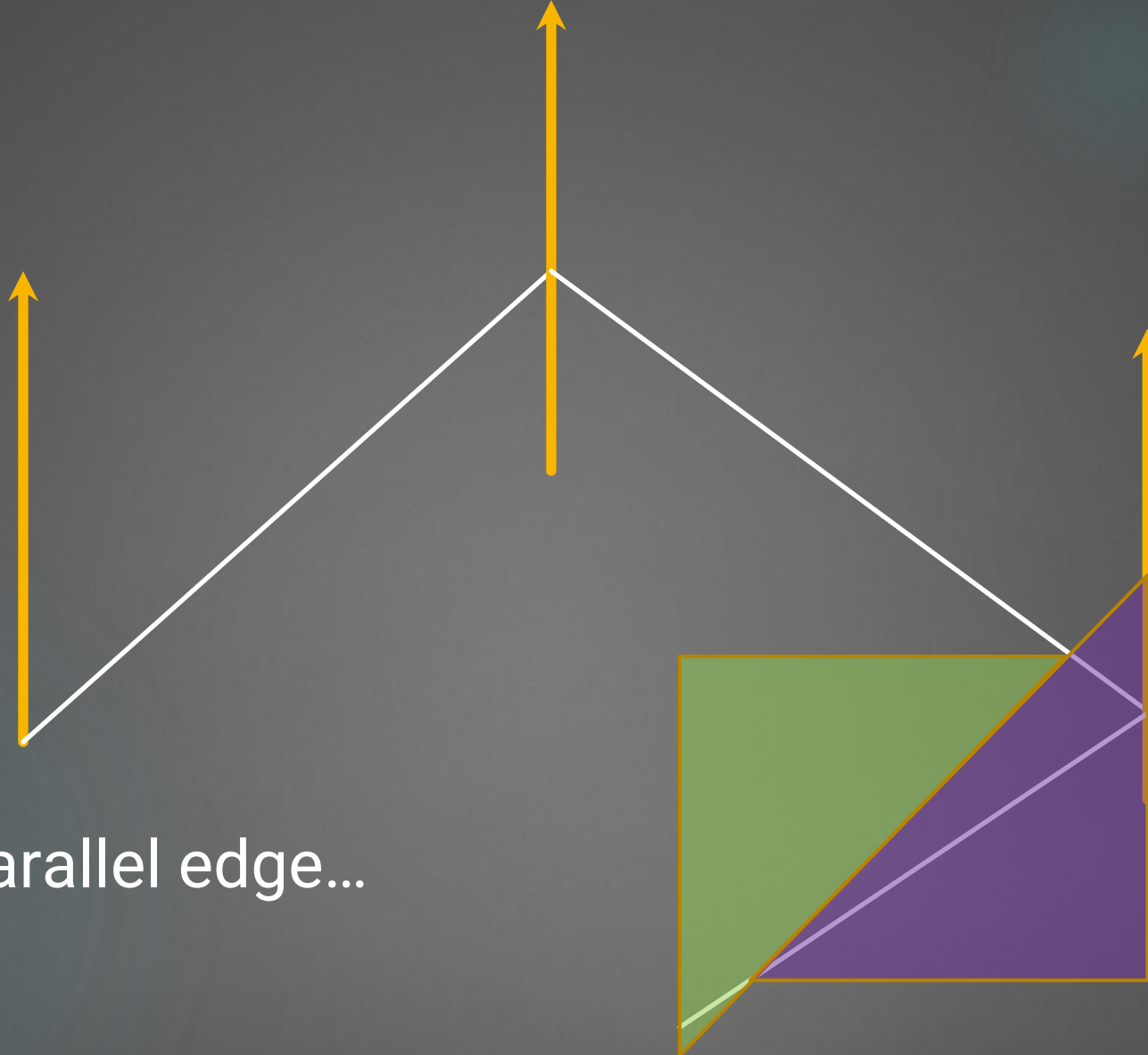
The distance is measured

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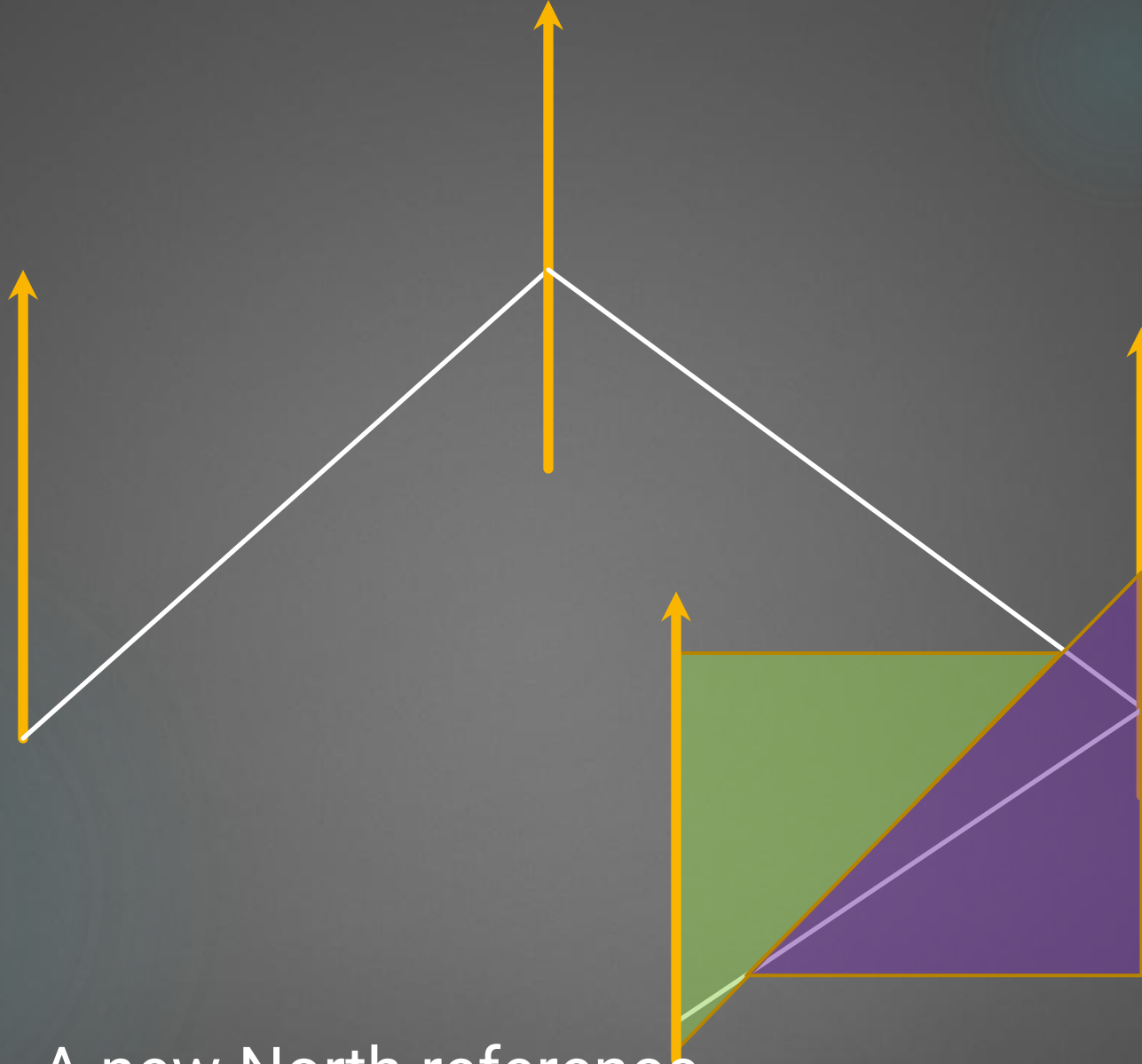
The entire process is repeated

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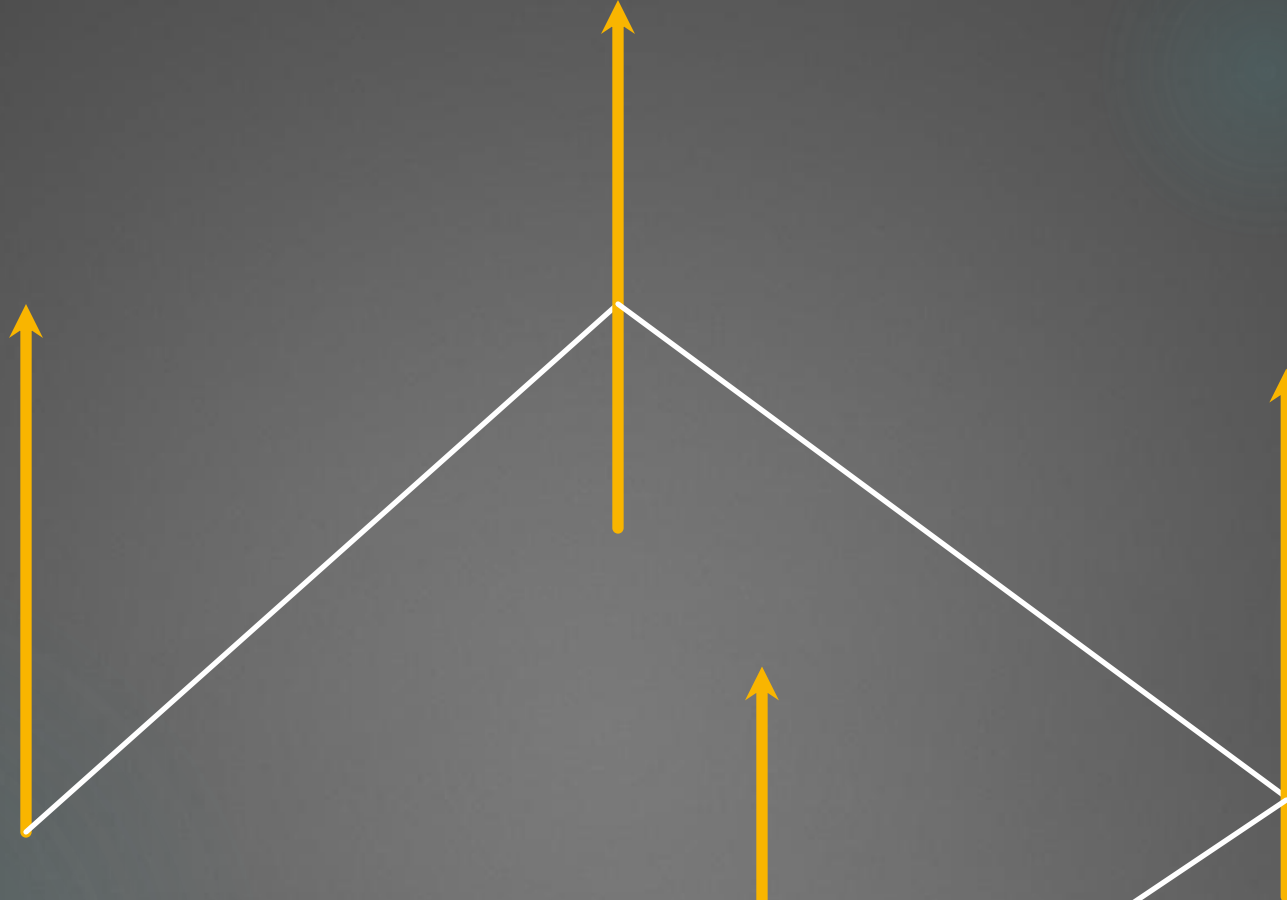
Establish a parallel edge...

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A new North reference.....

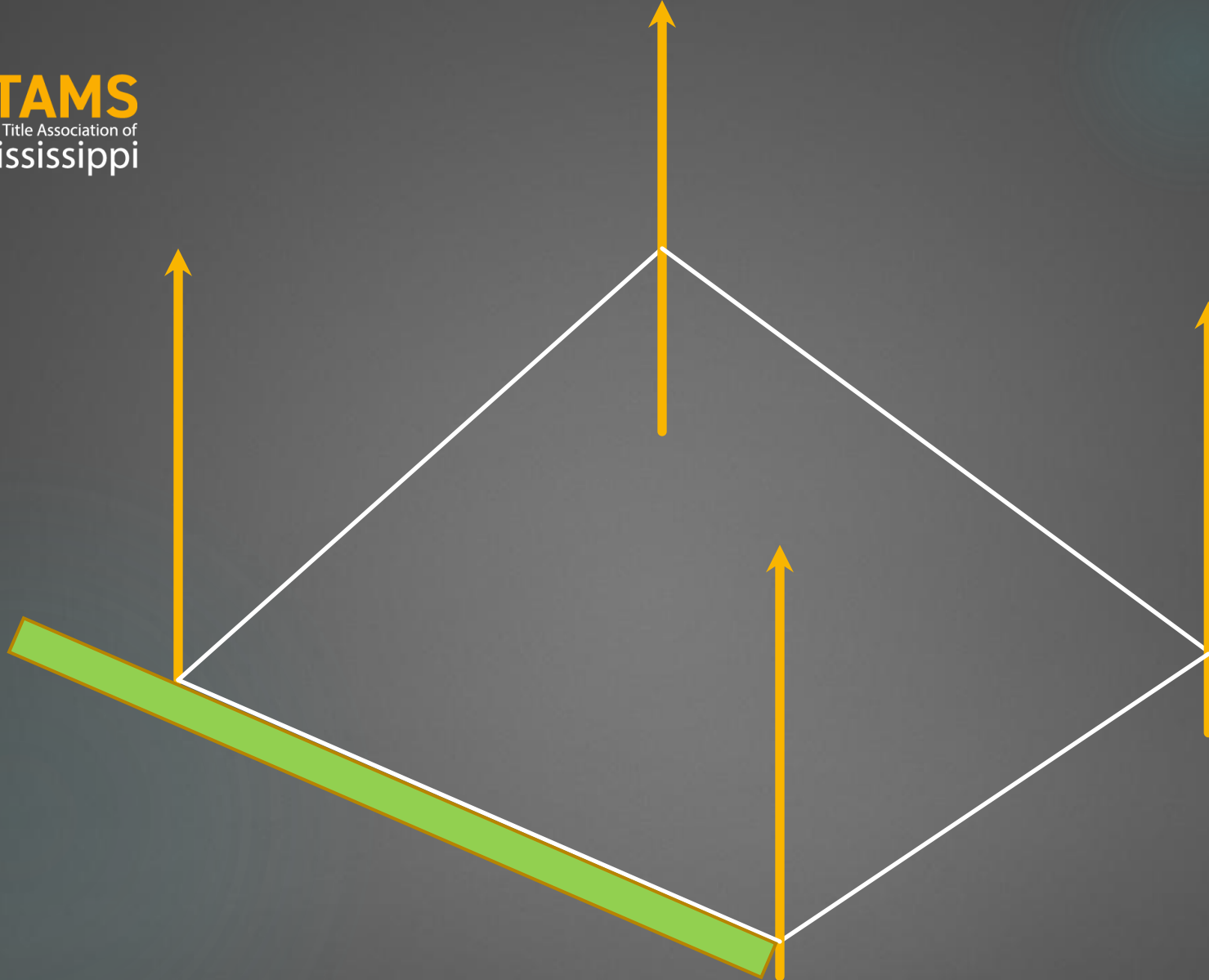
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Measure the bearing...



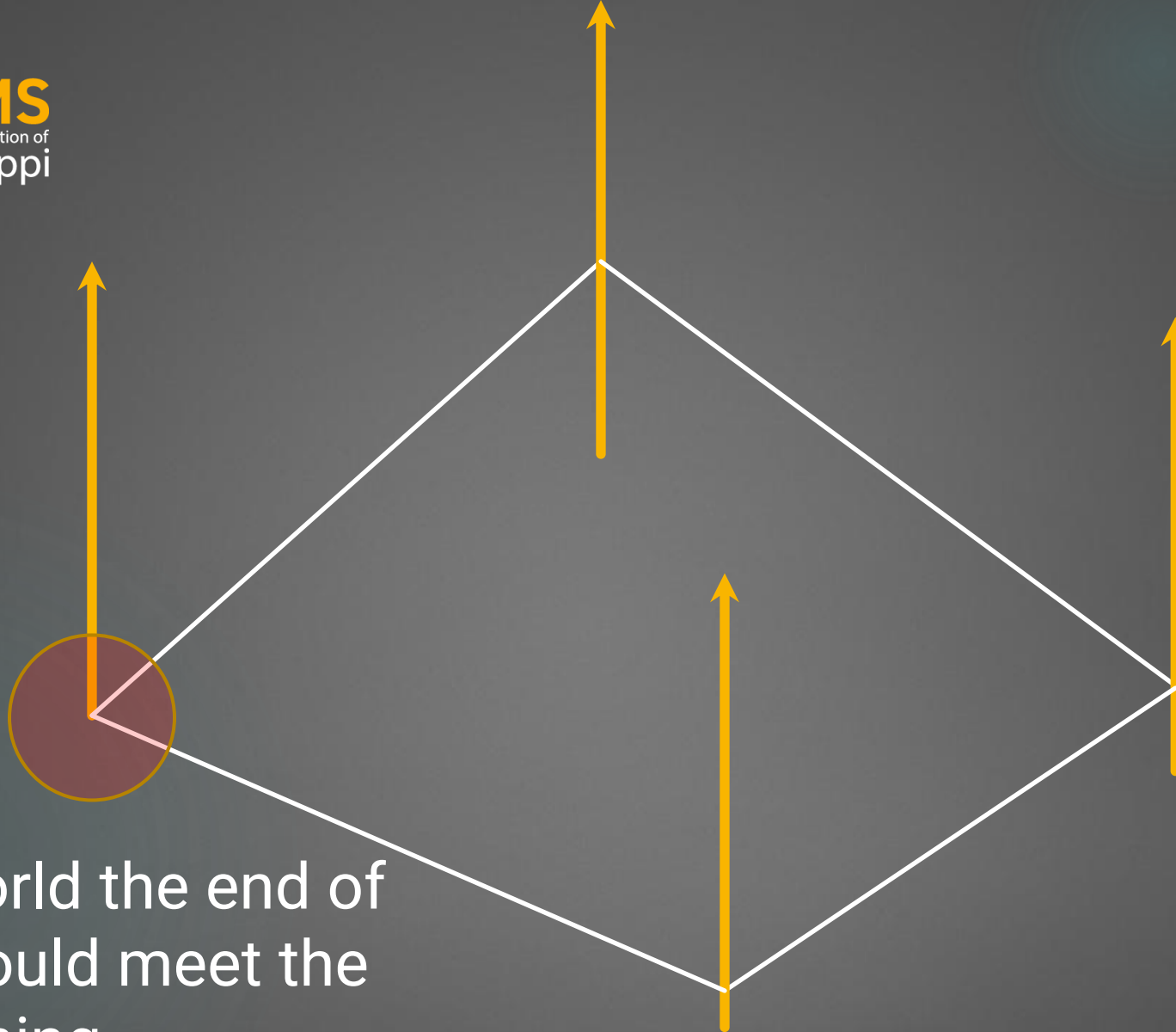
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Precision

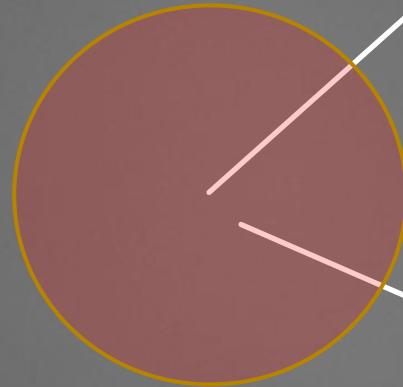
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In a perfect world the end of the last line would meet the point of beginning.

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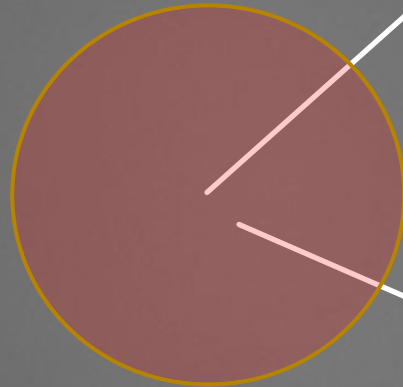
Misclosure = 0.25'
Distance Surveyed = 1,527'



This never happens. This small distance shown is the “closure”.

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Misclosure = 0.33'
Distance Surveyed = 1,722'



This never happens. This small distance shown is the “closure”.

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Misclosure = 0.25'
Distance Surveyed = 1,527'

$$0.25:1527 = 1:6108$$

Divide both 0.25 and
1527 by 0.25

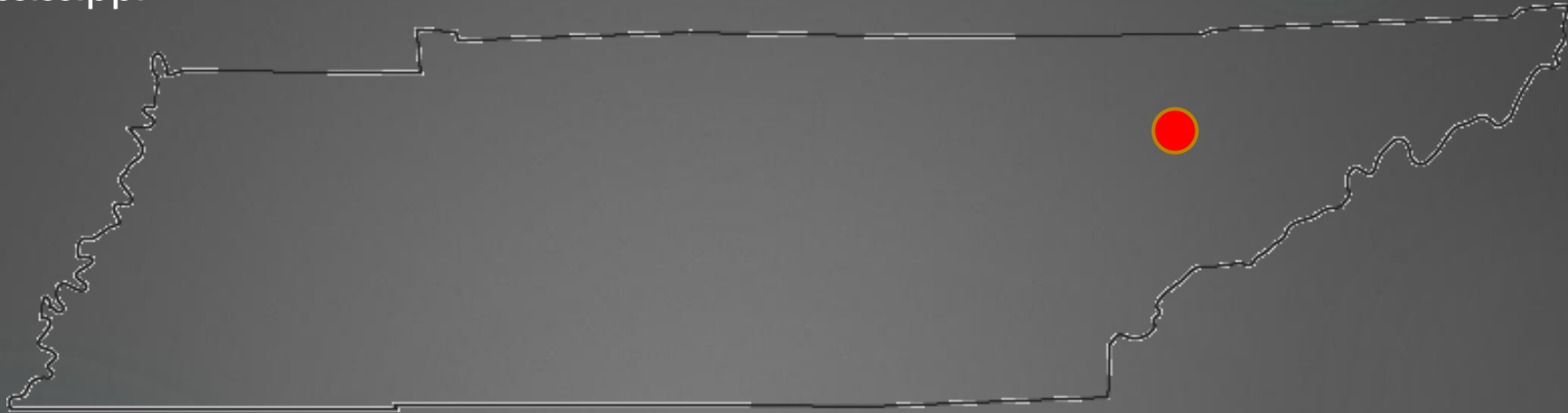
Misclosure = 0.33'
Distance Surveyed = 1,822'

$$0.33:1822 = 1:5521$$

Divide both 0.33 and
1822 by 0.33

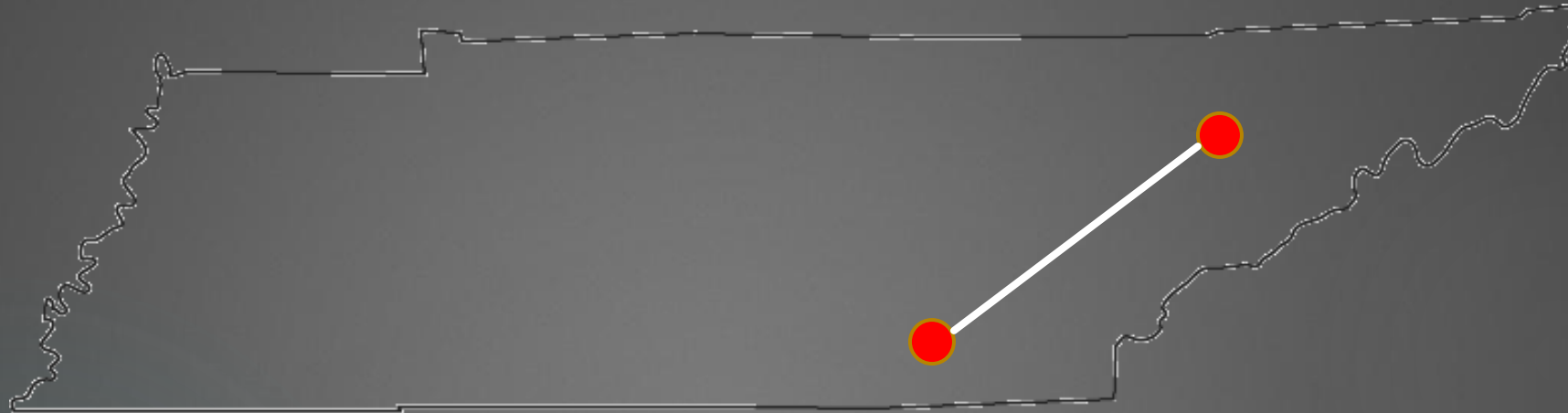
Closure

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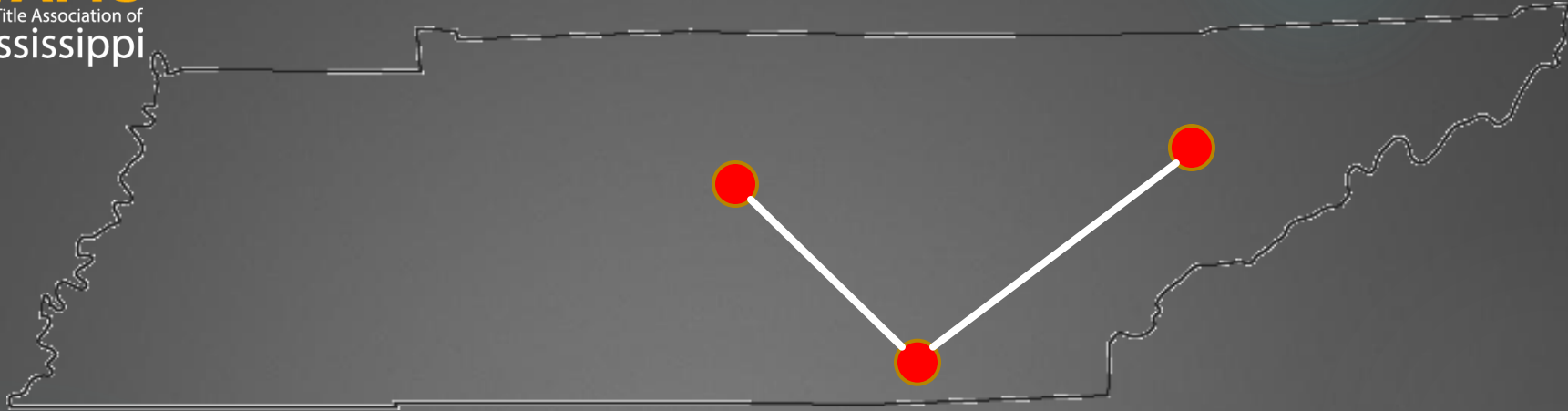
Here is a riddle to aid in explaining closure. You get in your car in Knoxville at a point we will call “A”

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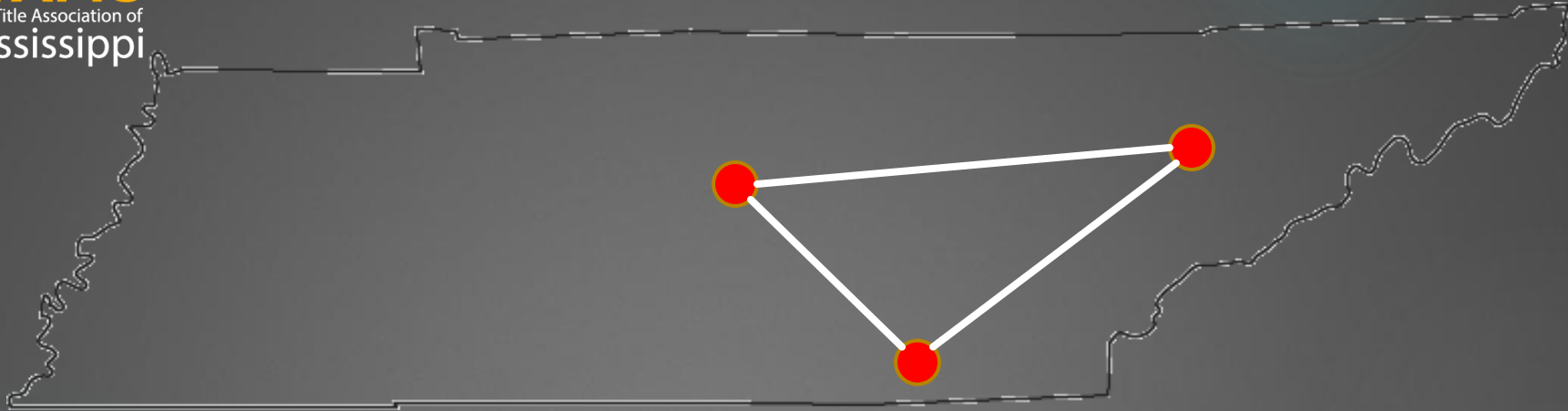
You then drive from point “A” to
Chattanooga

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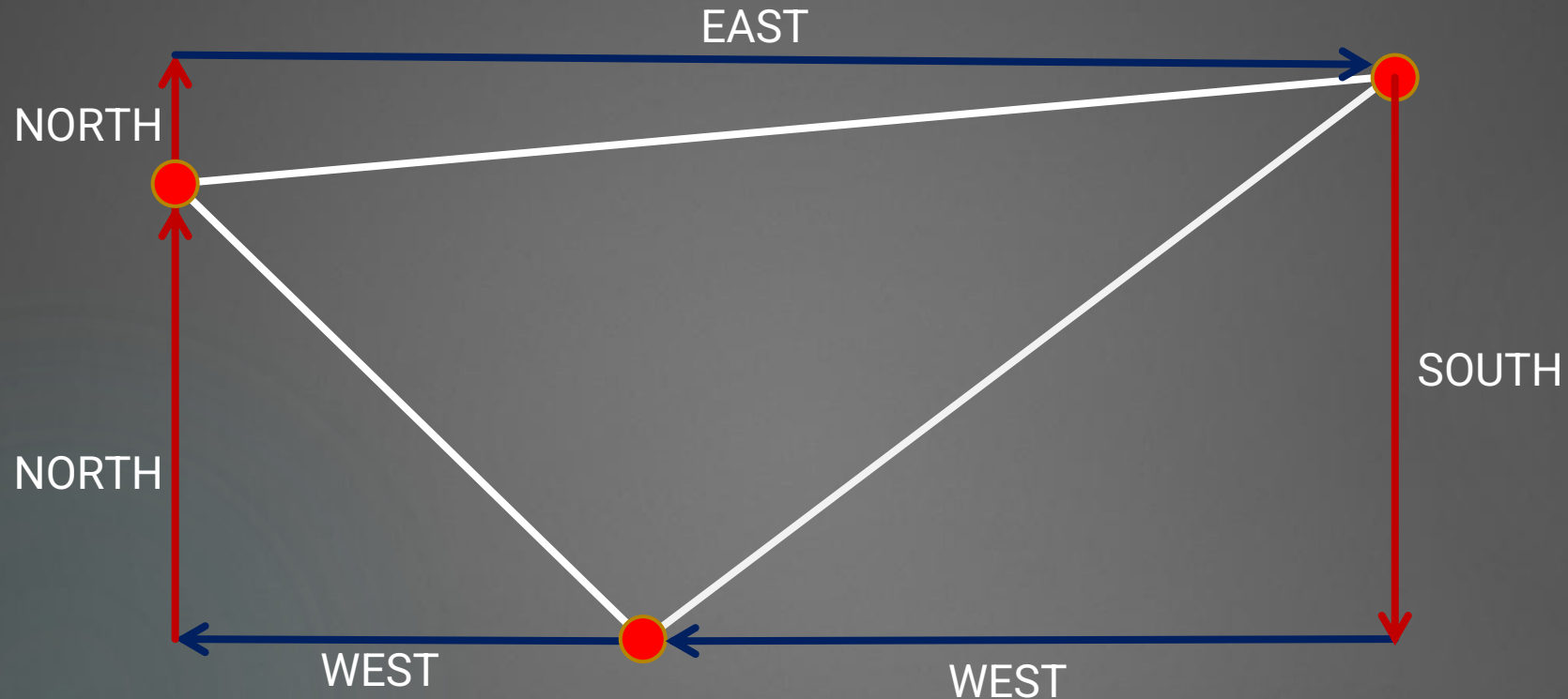
Then from Chattanooga to Nashville.

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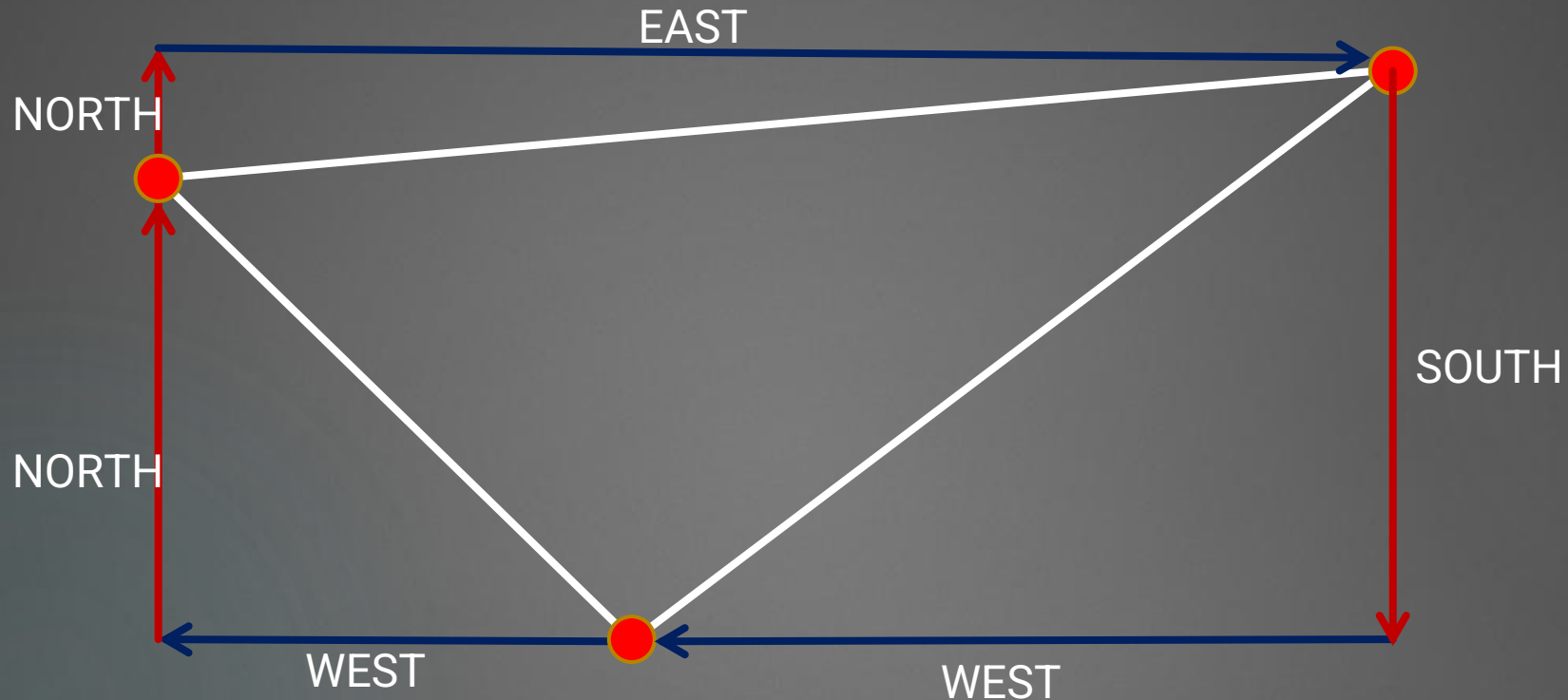
Then from Nashville back to point “A” in Knoxville. The question is how far north did you drive?

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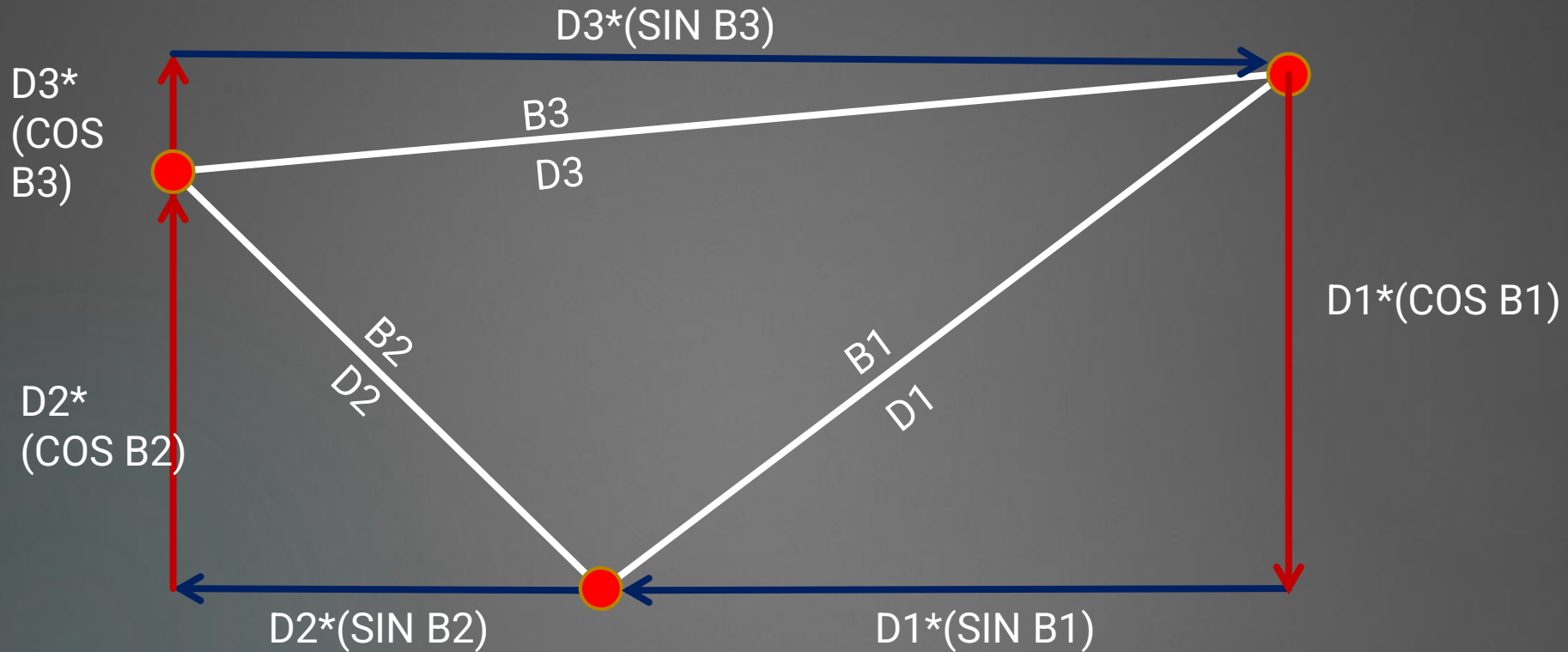
You drove as far north as you did south
and as far east as west to get back to “A”.

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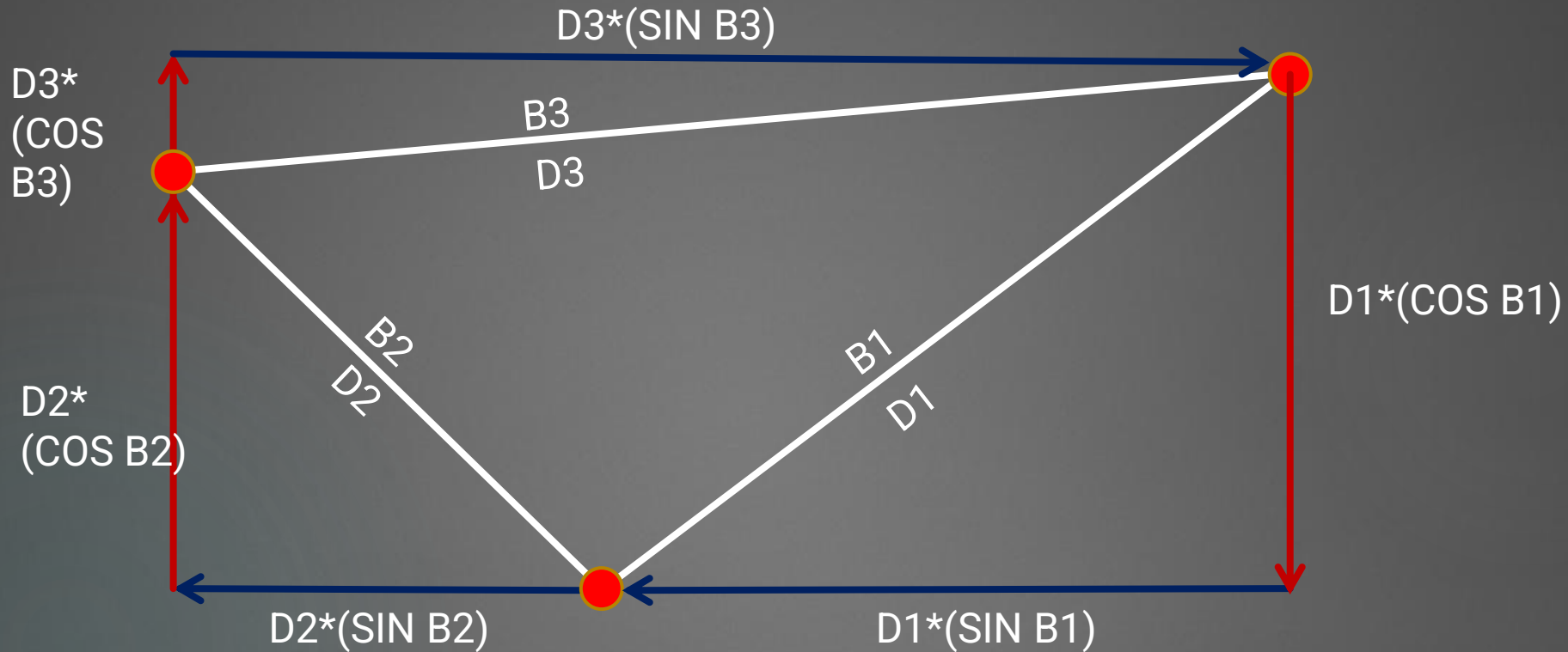
This is the concept of closure. To get back to the beginning point north and south must be equal distances as well as east and west.

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Surveyors calculate these values using the bearings and distances and the trigonometric functions shown.

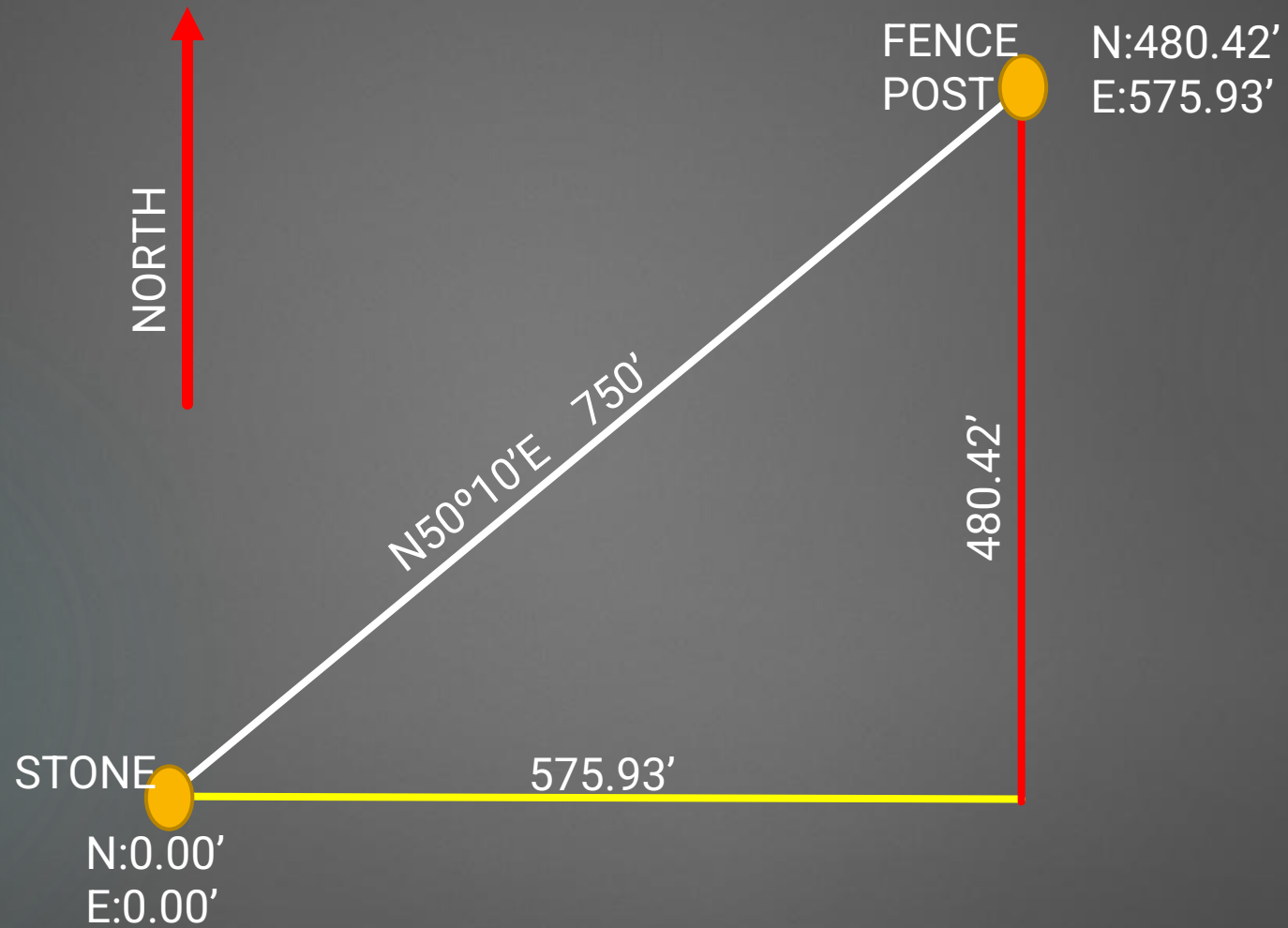
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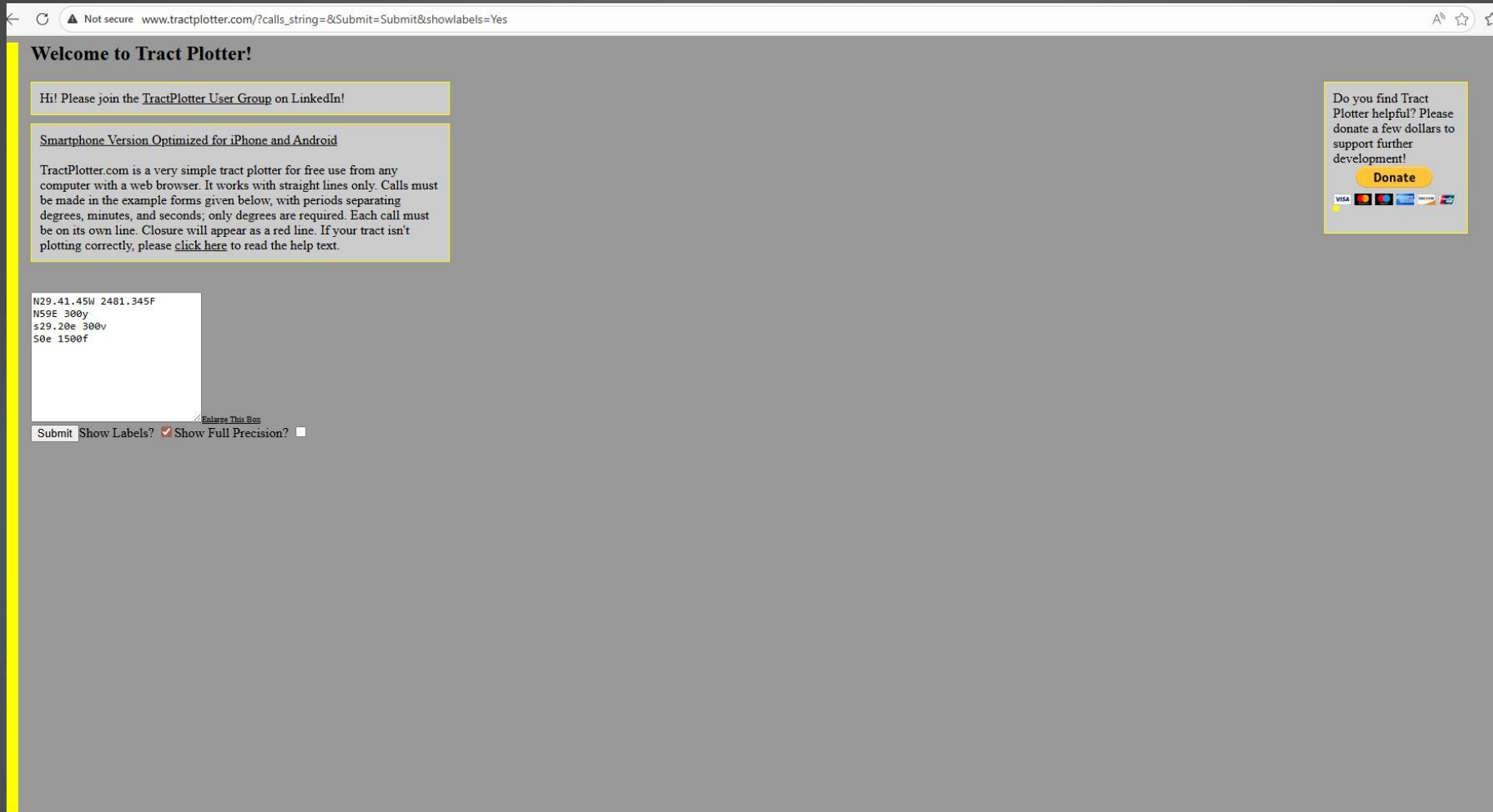


North-South values are latitudes and East-West values are departures. North and East are positive. South and West are negative.

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The screenshot shows a web browser window with the URL `www.tractplotter.com/?calls_string=&Submit=Submit&showlabels=Yes`. The page title is "Welcome to Tract Plotter!".

Key elements on the page include:

- A link to join the [TractPlotter User Group on LinkedIn!](#)
- A section titled "Smartphone Version Optimized for iPhone and Android" with instructions: "TractPlotter.com is a very simple tract plotter for free use from any computer with a web browser. It works with straight lines only. Calls must be made in the example forms given below, with periods separating degrees, minutes, and seconds; only degrees are required. Each call must be on its own line. Closure will appear as a red line. If your tract isn't plotting correctly, please [click here](#) to read the help text."
- A text input area containing the following coordinates:

```
N29.41.45W 2481.345F
N59E 300y
S29.20e 300v
50e 1500f
```
- A "Submit" button and a checkbox for "Show Full Precision?" which is currently checked.
- A "Donate" button with logos for Visa, Mastercard, American Express, and Discover.

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TRACE PLOTTER

```
N41.50.29E 288.61F  
S50.26.49E 317.89F  
S59.44.57W 246.73F  
N63.31.20W 250.58F
```

[Enlarge This Box](#)

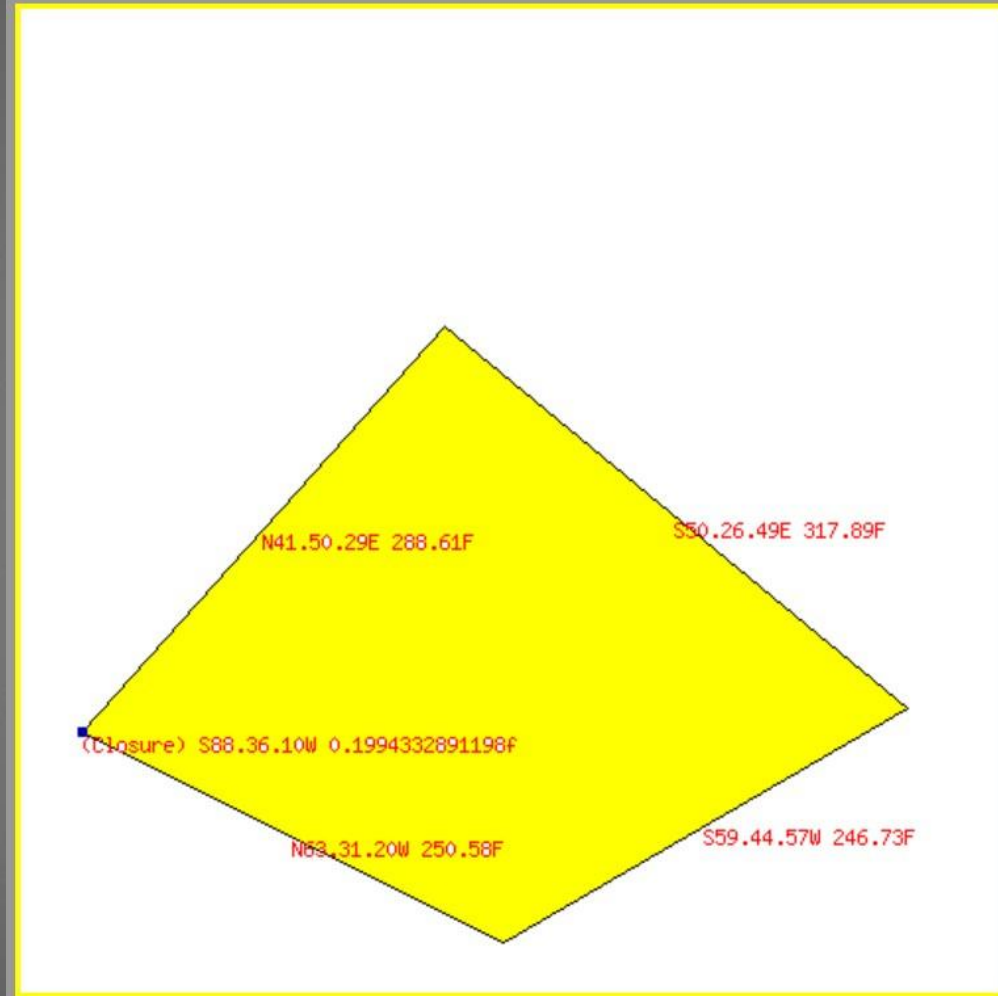
Submit

Show Labels?

Show Full Precision?

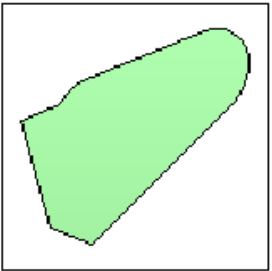
71682 square feet
1.6456 acres (+/- 0.000297 acres) Perimeter: 1103.81 feet
Closure: S88.36.10W 0.199433f (0.018068% or 1:5535 perimeter error)

TRACE PLOTTER

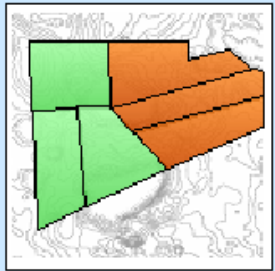


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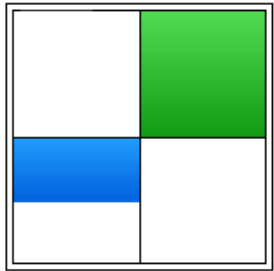
New Drawing Wizard



Simple

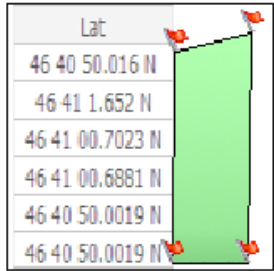


Complex



Section

Lat
46 40 50.016 N
46 41 1.652 N
46 41 00.7023 N
46 41 00.6881 N
46 40 50.0019 N
46 40 50.0019 N



Lat / Long

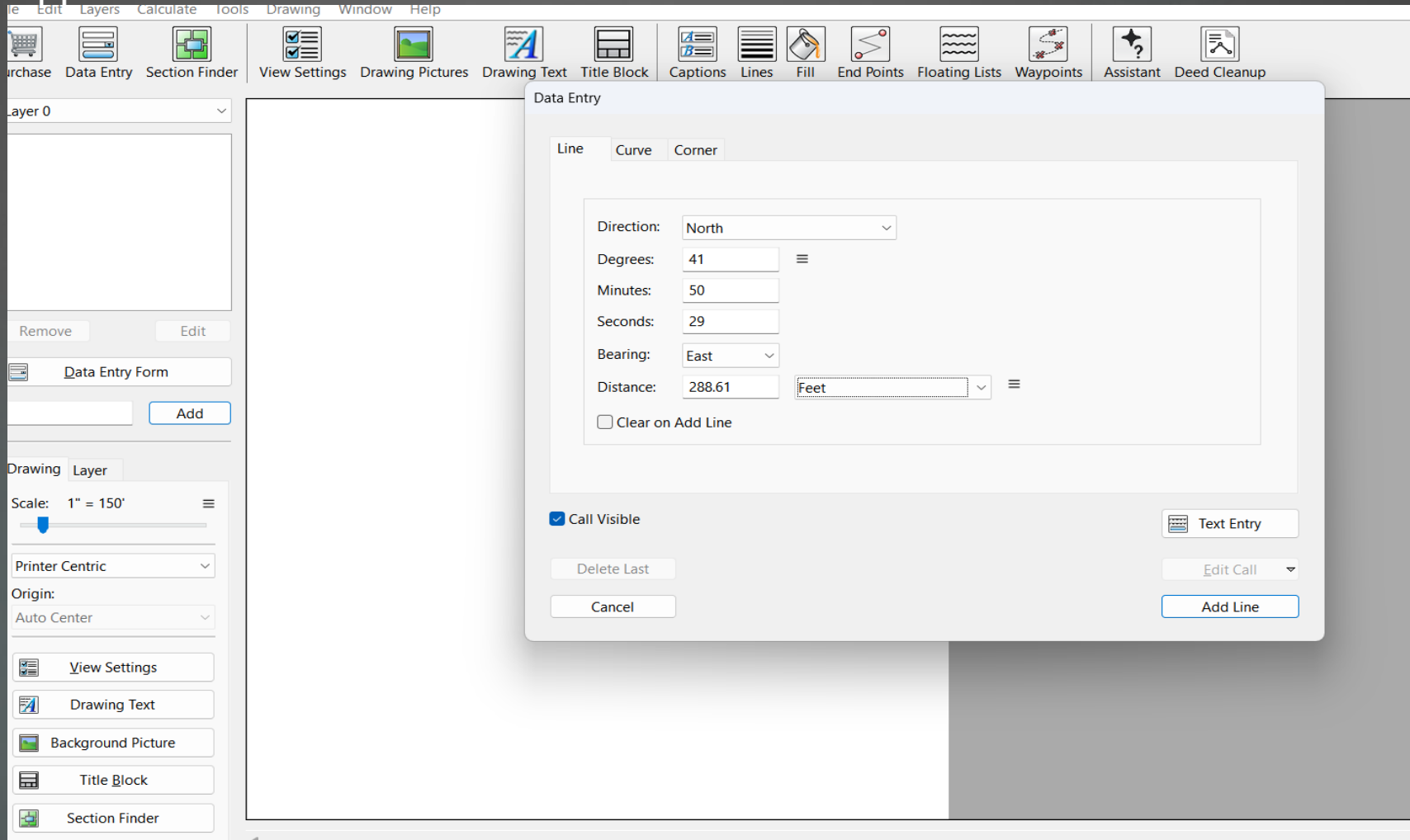
Select the drawing type that best matches your drawing needs.

Show New Drawing Wizard at Startup

[View Getting Started Tutorial...](#) [Register Software...](#)

Cancel Back Next

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The screenshot displays the Sandy Knoll Software interface. The main window has a menu bar (File, Edit, Layers, Calculate, Tools, Drawing, Window, Help) and a toolbar with icons for various functions like Purchase, Data Entry, Section Finder, View Settings, Drawing Pictures, Drawing Text, Title Block, Captions, Lines, Fill, End Points, Floating Lists, Waypoints, Assistant, and Deed Cleanup. On the left, there are panels for 'Layer 0', 'Data Entry Form' (with 'Add' button), and 'Drawing Layer' (with 'Scale: 1" = 150'', 'Printer Centric', 'Origin: Auto Center', and buttons for 'View Settings', 'Drawing Text', 'Background Picture', 'Title Block', and 'Section Finder'). A 'Data Entry' dialog box is open in the center, featuring tabs for 'Line', 'Curve', and 'Corner'. The 'Line' tab is active, showing fields for 'Direction' (North), 'Degrees' (41), 'Minutes' (50), 'Seconds' (29), 'Bearing' (East), and 'Distance' (288.61 Feet). There is a 'Clear on Add Line' checkbox and a 'Call Visible' checkbox (checked). Buttons for 'Text Entry', 'Delete Last', 'Edit Call', 'Cancel', and 'Add Line' are also present.

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SANDY KNOLL SOFTWARE

The screenshot displays the Sandy Knoll software interface. At the top, there is a menu bar with options: File, Edit, Layers, Calculate, Tools, Drawing, Window, and Help. Below the menu bar is a toolbar with icons for Purchase, Data Entry, Section Finder, View Settings, Drawing Pictures, Drawing Text, Title Block, Captions, Lines, Fill, End Points, Floating Lists, Waypoints, Assistant, and Deed Cleanup. On the left side, there is a 'Layer 0' panel containing a list of bearings and distances: N 41:50:29 E 288.61 Feet, S 50:26:49 E 317.89 Feet, S 59:44:57 W 246.73 Feet, and N 63:31:20 W 250.58 Feet. Below this list are 'Remove' and 'Edit' buttons. A 'Data Entry Form' is also visible, with the text '63:31:20 W 250.58' highlighted in blue and an 'Add' button next to it. The main drawing area shows a diamond shape (a square rotated 45 degrees) on a white background. A north arrow is located in the top right corner of the drawing area. On the right side of the drawing area, there is a vertical grey bar. At the bottom of the drawing area, there is a small blue arrow pointing left.

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THANK
YOU!

Have Questions?

Send [Speaker Name] an email at [Email Address].