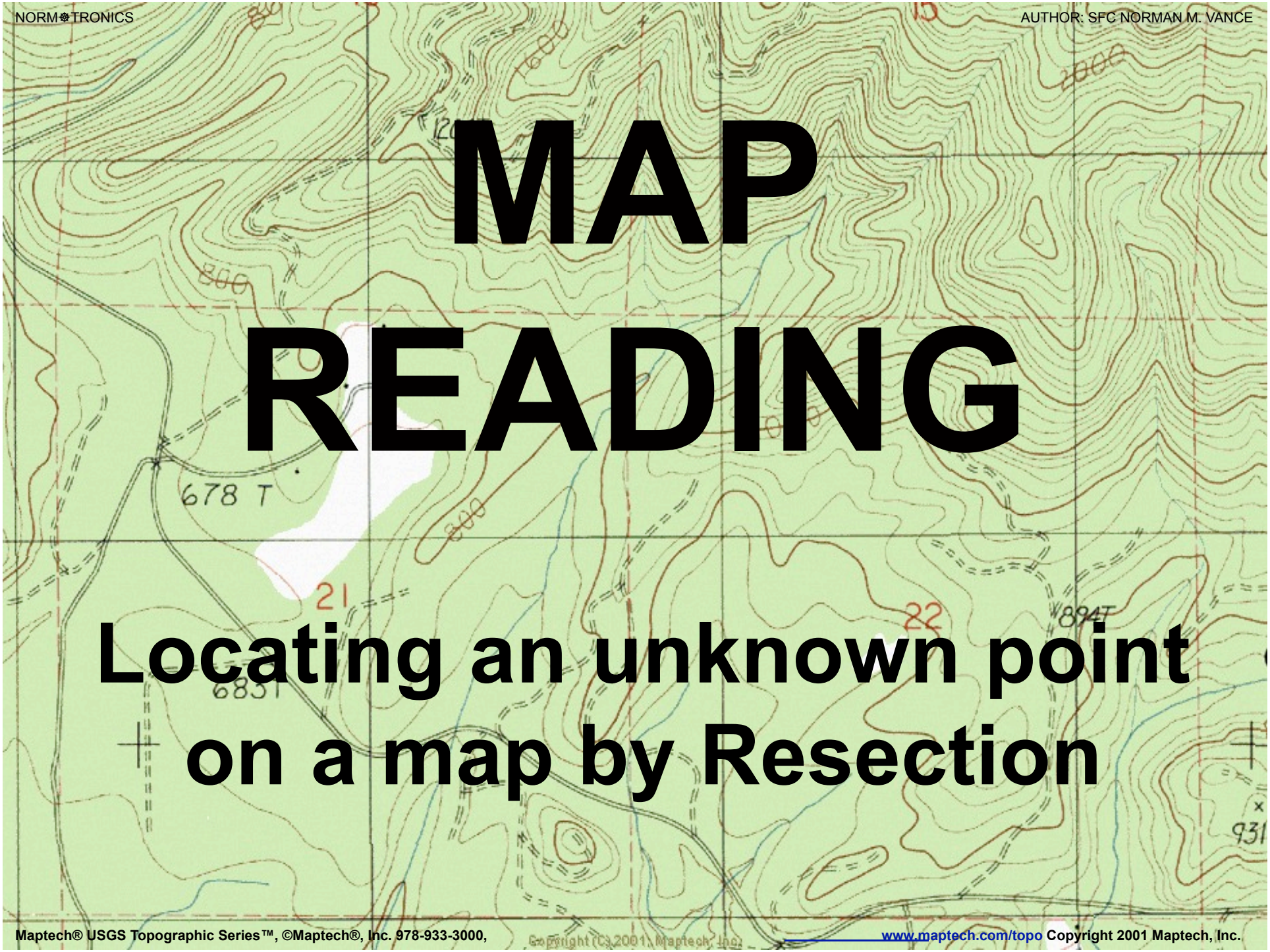
AUTHOR: SFC NORMAN M. VANCE



MAP READING

Locating an unknown point on a map by Resection

RESECTION

Determine the position of an unknown point by sighting on at least two, but preferably three, known positions.

Determine the azimuths from the unknown point to these positions.

Plot the back azimuths from the known positions to locate your unknown position by their intersection.

BACK AZIMUTH

RULE #1: IF THE AZIMUTH IS MORE THAN 180 DEGREES, THEN SUBTRACT 180 DEGREES.

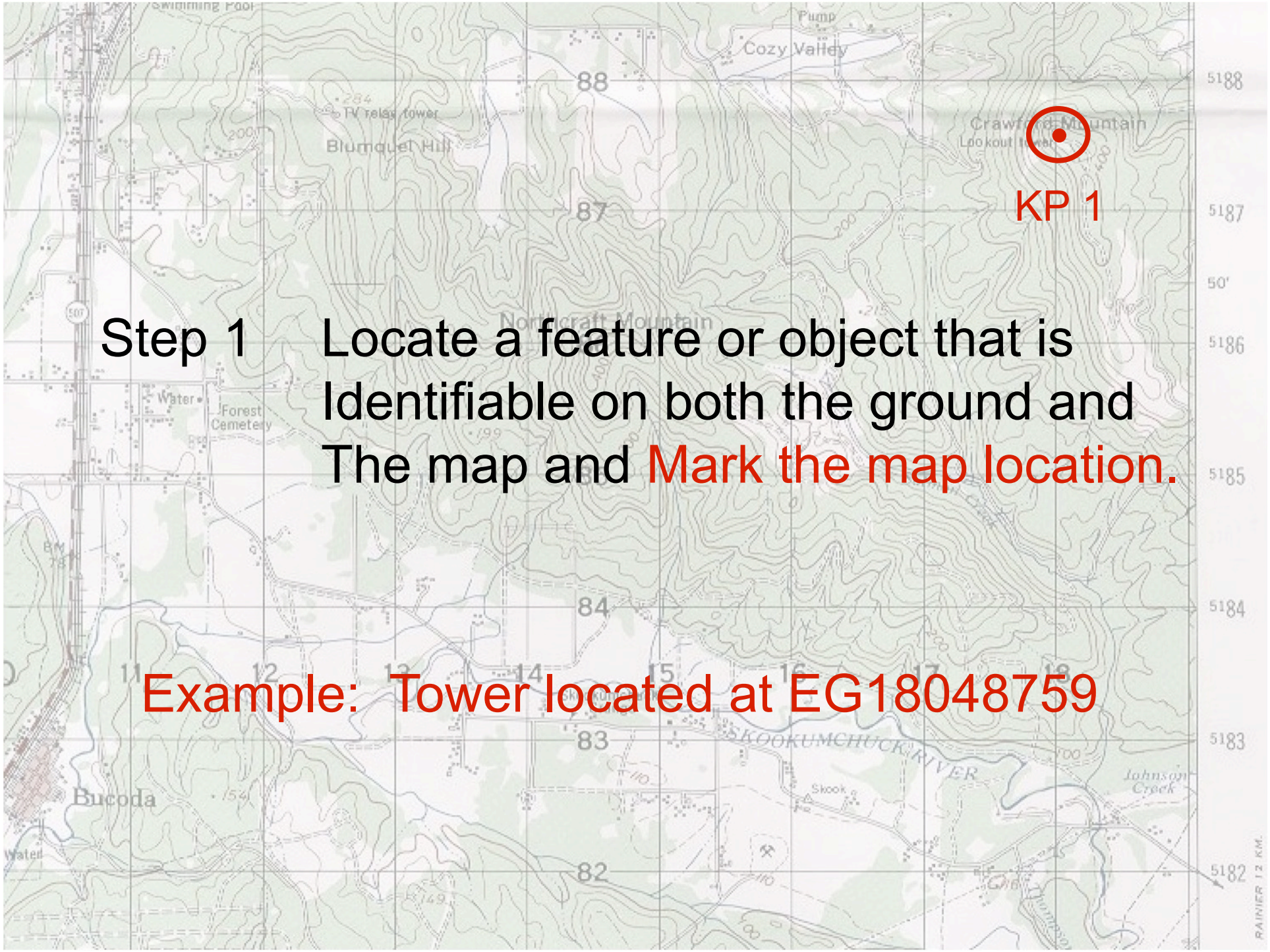
EXAMPLE: AZIMUTH 215 DEGREES
-180 DEGREES
BACK AZIMUTH 35 DEGREES

RULE #2: IF THE AZIMUTH IS 180 DEGREES OR LESS, THEN ADD 180 DEGREES.

EXAMPLE: AZIMUTH 180 DEGREES
+180 DEGREES
BACK AZIMUTH 360 DEGREES

STEP 1. LOCATE A FEATURE OR OBJECT THAT IS IDENTIFIABLE ON BOTH THE GROUND AND THE MAP AND MARK THE MAP LOCATION.

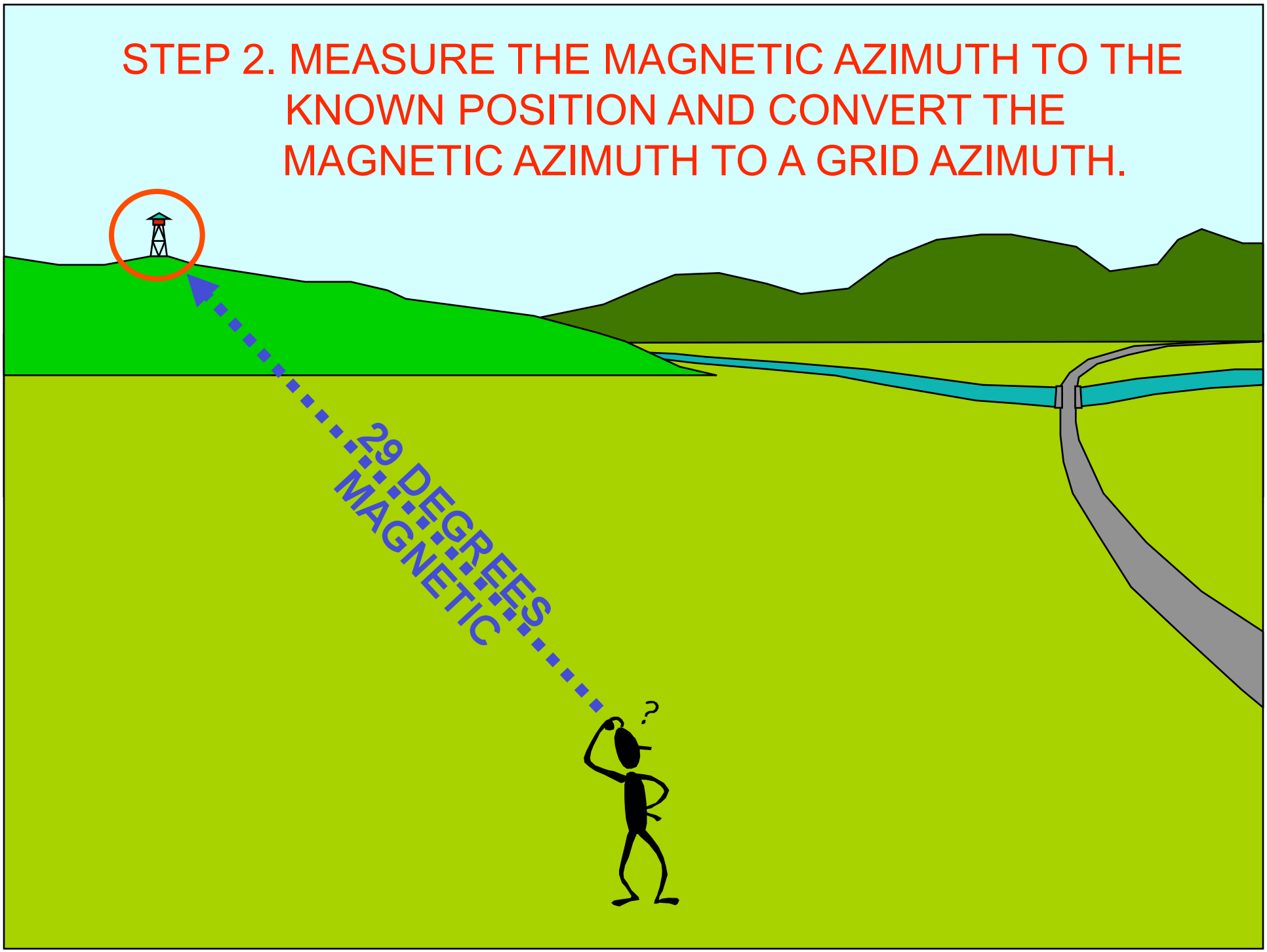
EXAMPLE: TOWER LOCATED AT
EG18048759



Step 1 Locate a feature or object that is Identifiable on both the ground and The map and Mark the map location.

Example: Tower located at EG18048759

STEP 2. MEASURE THE MAGNETIC AZIMUTH TO THE KNOWN POSITION AND CONVERT THE MAGNETIC AZIMUTH TO A GRID AZIMUTH.



STEP 2. MEASURE THE MAGNETIC AZIMUTH TO THE KNOWN POSITION AND CONVERT THE MAGNETIC AZIMUTH TO A GRID AZIMUTH.

MAGNETIC AZIMUTH: 29 DEGREES

EASTERLY G-M ANGLE: +21 DEGREES

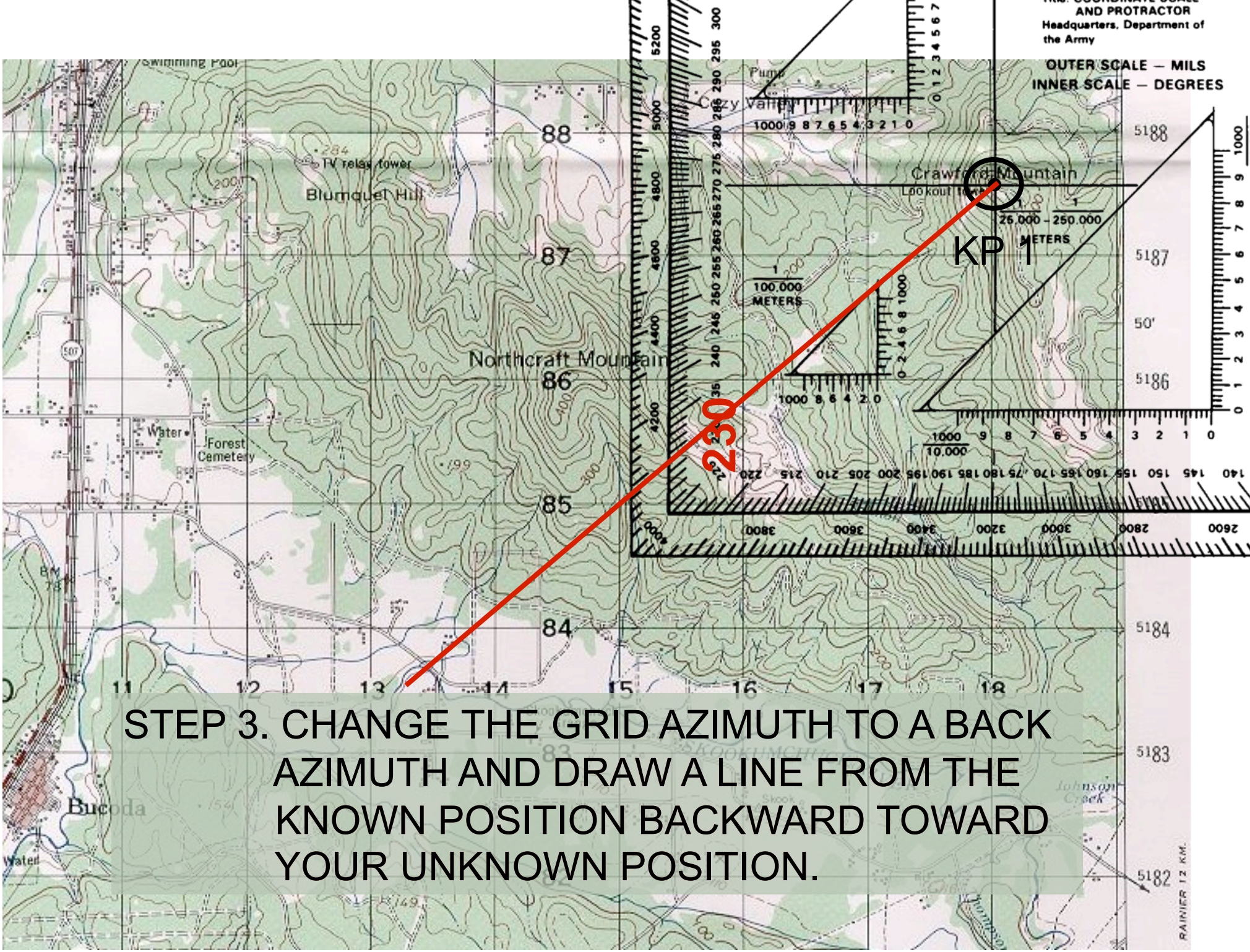
GRID AZIMUTH: 50 DEGREES

STEP 3. CHANGE THE GRID AZIMUTH TO A BACK AZIMUTH AND DRAW A LINE FROM THE KNOWN POSITION BACKWARD TOWARD YOUR UNKNOWN POSITION.

GRID AZIMUTH: 50 DEGREES

ADD: +180 DEGREES

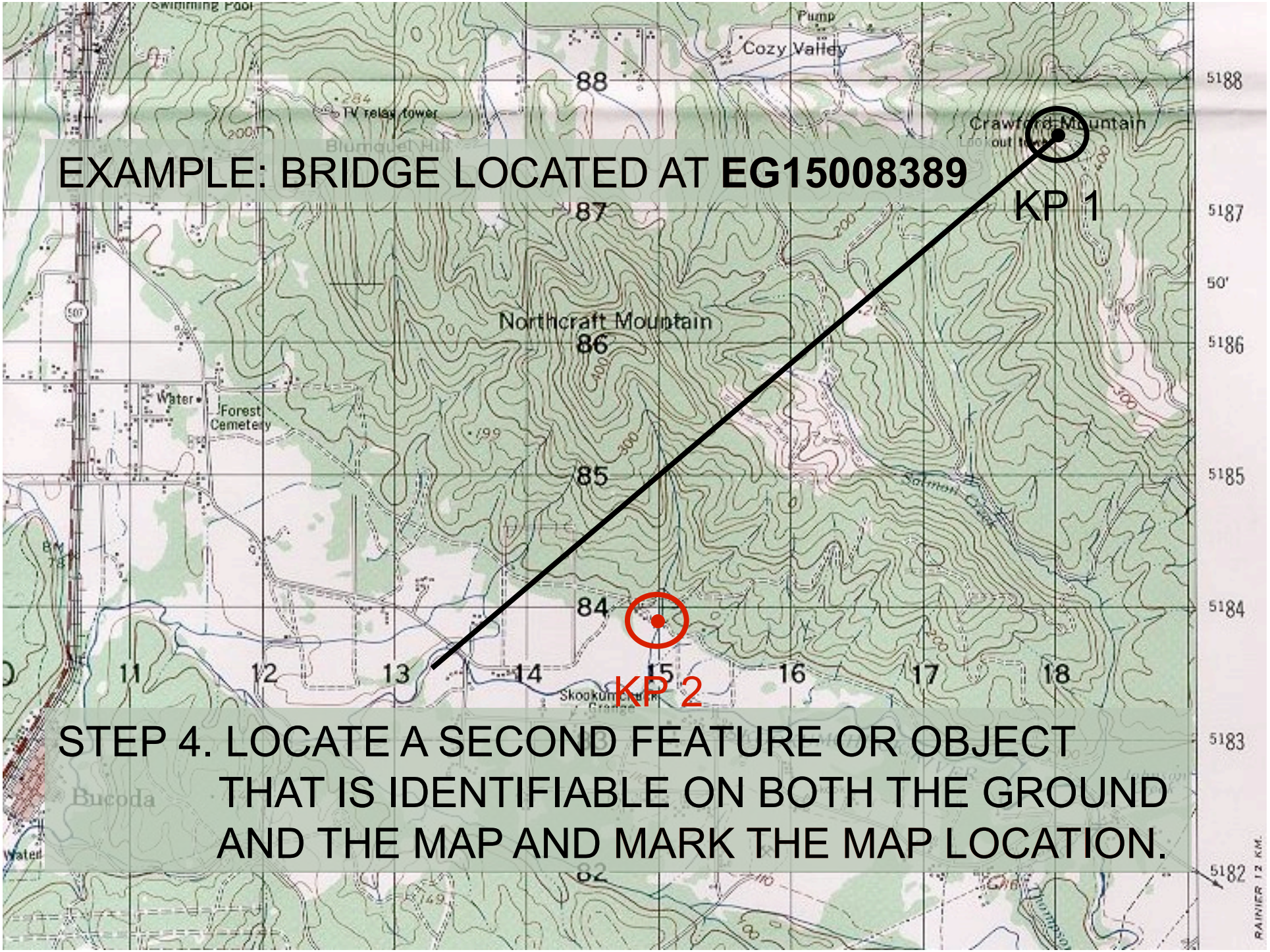
GRID BACK AZIMUTH: 230 DEGREES



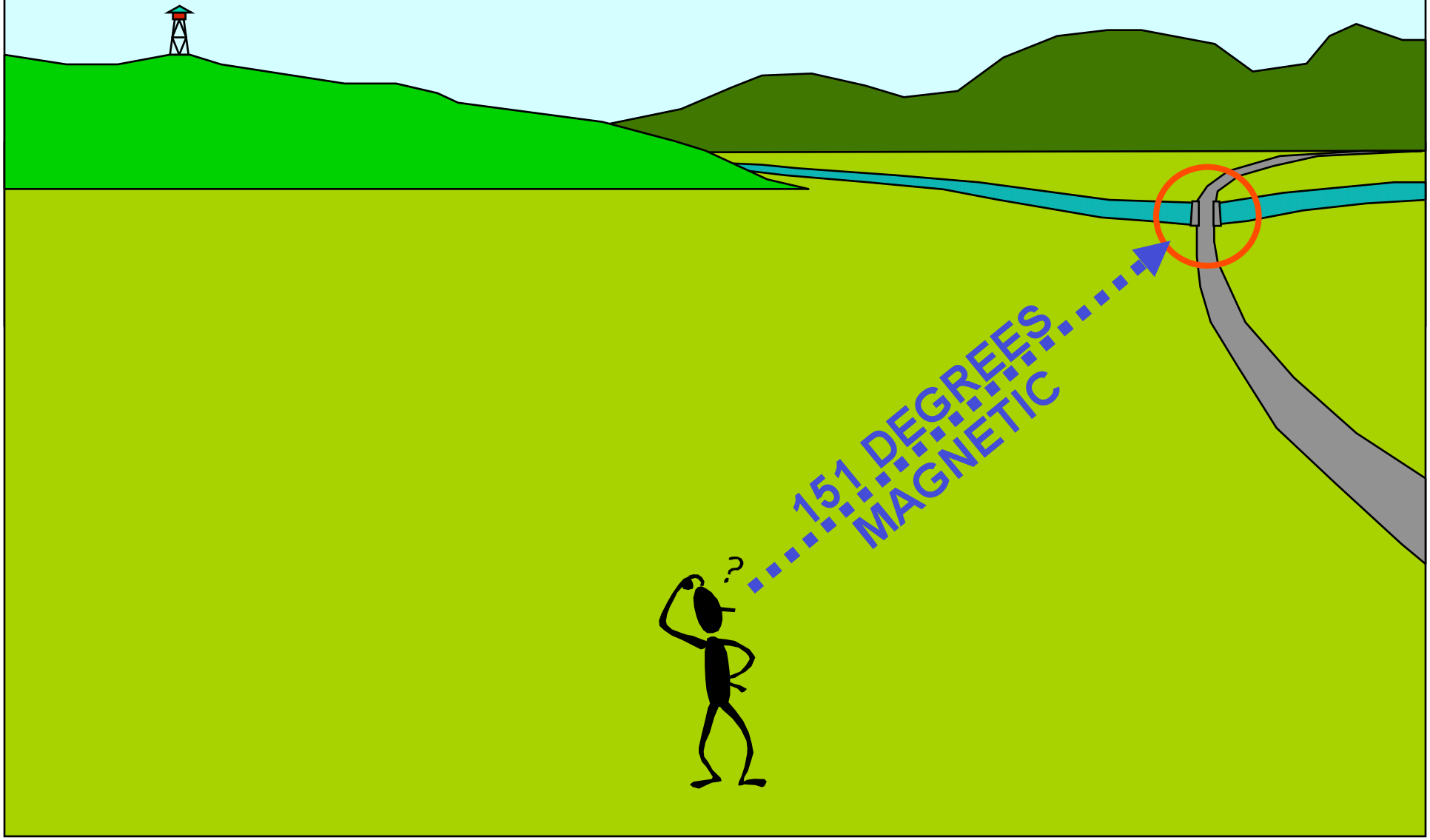
STEP 3. CHANGE THE GRID AZIMUTH TO A BACK AZIMUTH AND DRAW A LINE FROM THE KNOWN POSITION BACKWARD TOWARD YOUR UNKNOWN POSITION.

STEP 4. LOCATE A SECOND FEATURE OR OBJECT THAT IS IDENTIFIABLE ON BOTH THE GROUND AND THE MAP AND MARK THE MAP LOCATION.

EXAMPLE: BRIDGE LOCATED AT
EG15008389


EXAMPLE: BRIDGE LOCATED AT **EG15008389**
KP 1
KP 2
STEP 4. LOCATE A SECOND FEATURE OR OBJECT THAT IS IDENTIFIABLE ON BOTH THE GROUND AND THE MAP AND MARK THE MAP LOCATION.
Cozy Valley
Northcraft Mountain
Forest Cemetery
Bucoda
88
87
86
85
84
82
11
12
13
14
15
16
17
18
5188
5187
5186
5185
5184
5183
5182

STEP 5. MEASURE THE MAGNETIC AZIMUTH TO THE SECOND KNOWN POSITION AND CONVERT THE MAGNETIC AZIMUTH TO A GRID AZIMUTH.



STEP 5. MEASURE THE MAGNETIC AZIMUTH TO THE SECOND KNOWN POSITION AND CONVERT THE MAGNETIC AZIMUTH TO A GRID AZIMUTH.

MAGNETIC AZIMUTH: 151 DEGREES

EASTERLY G-M ANGLE: +21 DEGREES

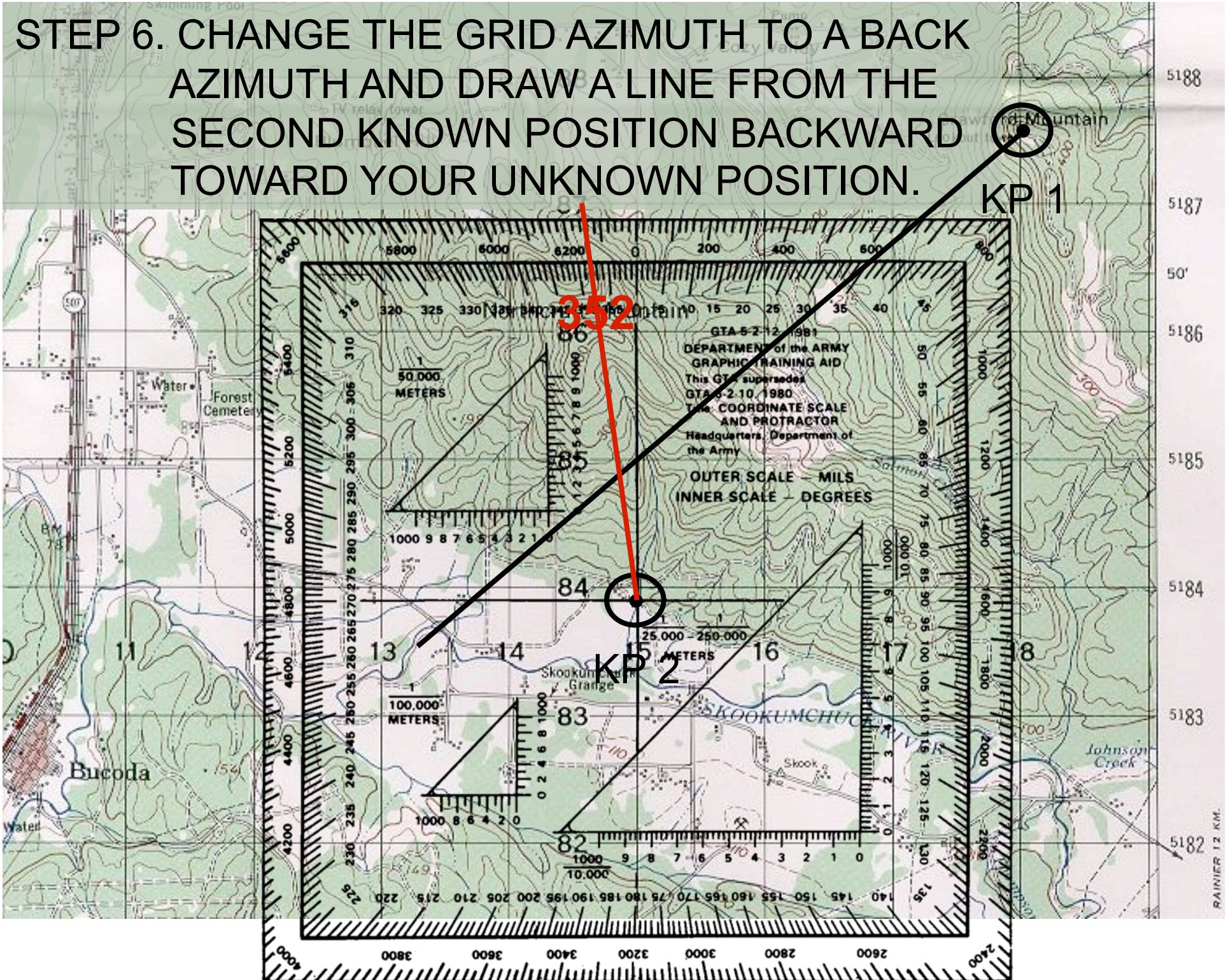
GRID AZIMUTH: 172 DEGREES

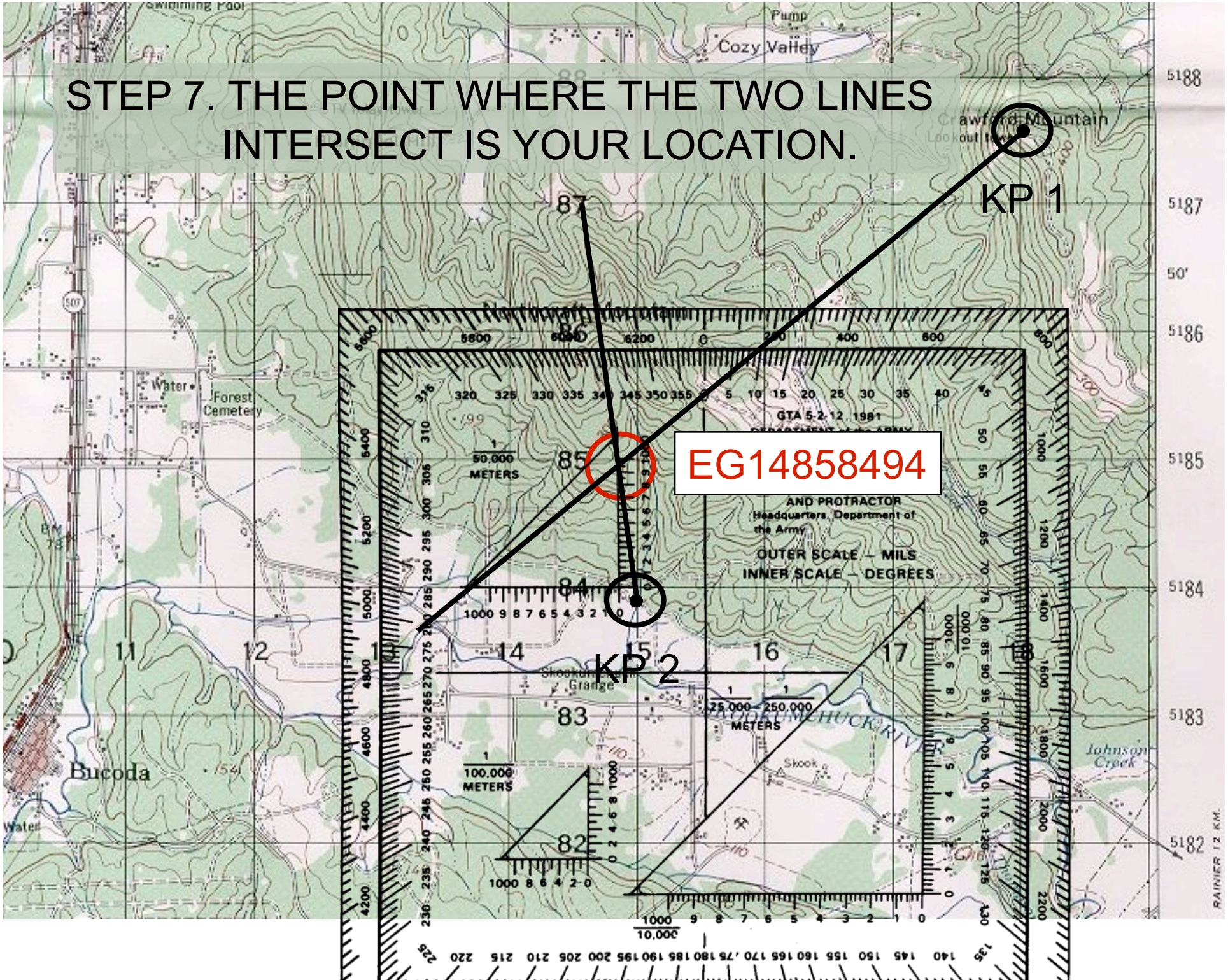
STEP 6. CHANGE THE GRID AZIMUTH TO A BACK AZIMUTH AND DRAW A LINE FROM THE SECOND KNOWN POSITION BACKWARD TOWARD YOUR UNKNOWN POSITION.

GRID AZIMUTH: 172 DEGREES

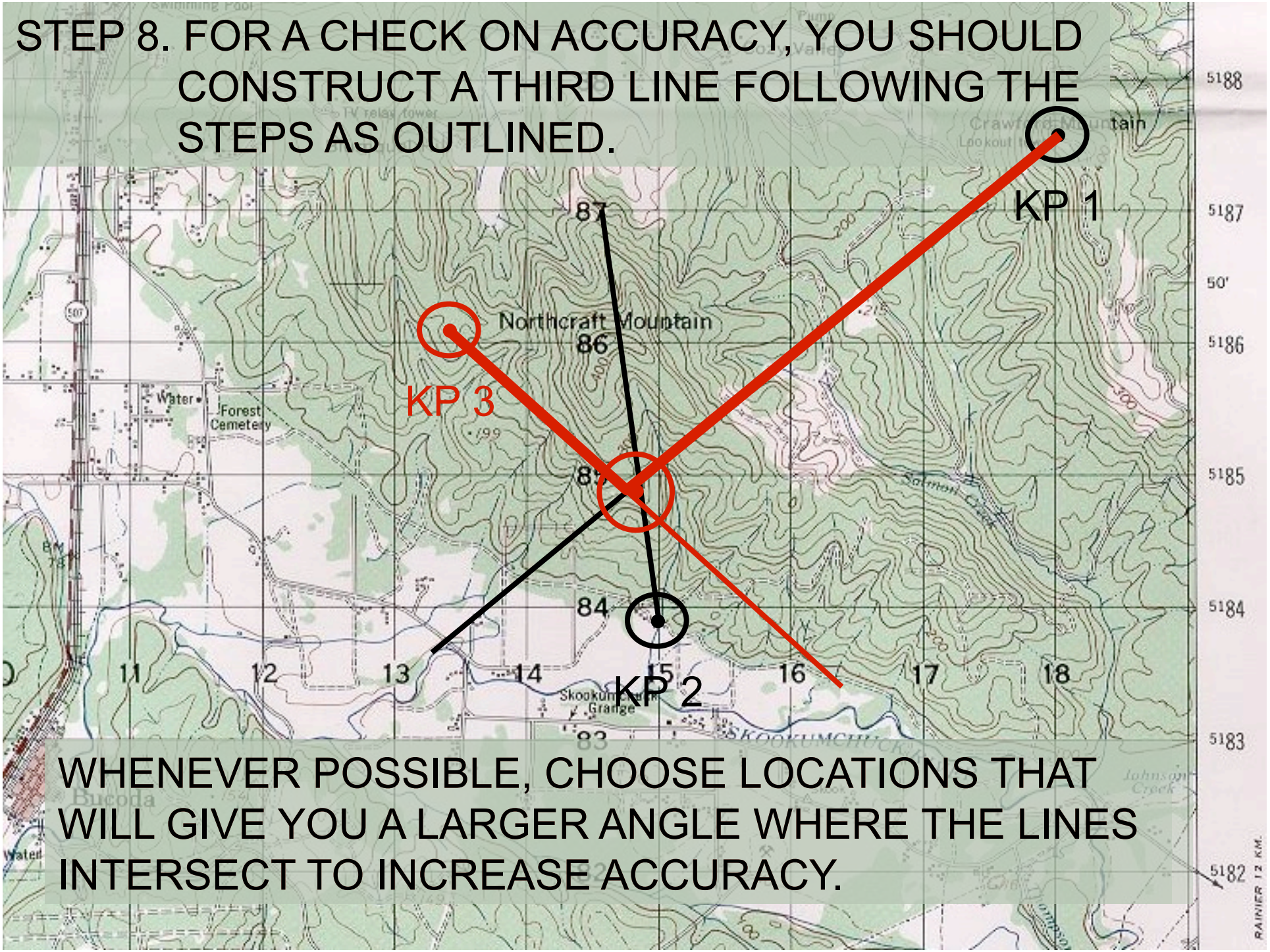
ADD: +180 DEGREES

GRID BACK AZIMUTH: 352 DEGREES


STEP 6. CHANGE THE GRID AZIMUTH TO A BACK AZIMUTH AND DRAW A LINE FROM THE SECOND KNOWN POSITION BACKWARD TOWARD YOUR UNKNOWN POSITION.
KP 1
KP 2
352
Mountain
Bucoda
Water
Forest Cemetery
Grange
Skook
Johnson Creek
GTA 5-2-12, 1981
DEPARTMENT of the ARMY
GRAPHIC TRAINING AID
This GTA supersedes
GTA 5-2-10, 1980
Title: COORDINATE SCALE AND PROTRACTOR
Headquarters, Department of the Army
OUTER SCALE – MILS
INNER SCALE – DEGREES
1 / 50,000 METERS
1 / 25,000 – 250,000 METERS
1 / 100,000 METERS
1000 / 10,000
RAINIER 12 KM.


STEP 7. THE POINT WHERE THE TWO LINES INTERSECT IS YOUR LOCATION.
KP 1
KP 2
EG14858494
Cozy Valley
Bucoda
Forest Cemetery
Water
Skookum Grange
Johnson Creek
AND PROTRACTOR
Headquarters, Department of the Army
OUTER SCALE – MILS
INNER SCALE – DEGREES
GTA 5-2-12, 1981
1/50,000 METERS
1/25,000 1/250,000 METERS
1/100,000 METERS
1/10,000
RAINIER 12 KM.

STEP 8. FOR A CHECK ON ACCURACY, YOU SHOULD CONSTRUCT A THIRD LINE FOLLOWING THE STEPS AS OUTLINED.



WHENEVER POSSIBLE, CHOOSE LOCATIONS THAT WILL GIVE YOU A LARGER ANGLE WHERE THE LINES INTERSECT TO INCREASE ACCURACY.

RESECTION WITHOUT A COMPASS

STEP 1. ORIENT THE MAP TO THE GROUND.

STEP 2. LOCATE AT LEAST TWO KNOWN POSITIONS ON THE GROUND AND MARK THEM ON THE MAP.

STEP 3. LAY A STRAIGHT EDGE (I.E. PROTRACTOR) WITH ONE END AT THE FIRST KNOWN POSITION AS A PIVOT POINT, THEN ROTATE THE STRAIGHT EDGE TOWARD YOURSELF UNTIL YOU SIGHT THE KNOWN POSITION ALONG THE EDGE.

STEP 4. DRAW A LINE ALONG THE STRAIGHT EDGE.

STEP 5. REPEAT PROCEDURES 1 THRU 4 FOR THE NEXT KNOWN POSITION.

STEP 6. THE INTERSECTION OF LINES IS THE LOCATION OF YOUR POSITION.

STEP 7. AGAIN, CHECK FOR ACCURACY, YOU MAY USE A THIRD POSITION.