Steps Report the measured values

Lengths of traverse sides		Azimuth AB - you will lose points for using Decimal Degrees
AB		Starting Point - which number control point (1-5)
BC	report these	You MUST label your points in Counter-Clockwise order
CD	in feet	If you don't include units on your numbers, you will lose points
DE		
EA		

#1 Balance the interior angles — Angles are named a for the letter point they're on.

1 pt

A — For example, The angle is A and never AB

B

C — Your angles should add to 540

D — Use an online calculator/TA to make sure you're right

E

#2 Azimuths- reduce each to be between (0,360)

5 pts

		Bearings	Give in the format
AB	Measured from the total station	AB	N or S, Angle, E or W
BC	=AZab + 180 + Angle A	BC	
CD	=AZbc + 180 + Angle B	CD	
DE	=AZcd + 180 + Angle C	DE	
EA	=AZde + 180 + Angle D	EA	

Check your answers by calculating AZab using the AZea value you calculated.

#3 Latitudes

5 pts

		Departures	
AB	= LengthAB*cos(AZab)	AB	= LengthAB*sin(AZab)
BC	= LengthBC*cos(AZbc)	BC	= LengthBC*sin(AZbc)
CD	= LengthCD*cos(AZcd)	CD	= LengthCD*sin(AZcd)
DE	= LengthDE*cos(AZde)	DE	= LengthDE*sin(AZde)
EA	= LengthEA*cos(AZea)	EA	= LengthEA*sin(AZea)

#4 Error in Latitudes

2 pts

=LatAB + LatBC + LatCD + LatDE + LatEA

If you get a number larger than 15, you likely made a math mistake.

Error in Departures

=DepAB + DepBC + DepCD + DepDE + DepEA

If you get a number larger than 15, you likely made a math mistake.

#5 Precision- reported as 1:Precision value

1 pt

Precision = Measured Perimeter / Linear Error

Linear Error = (Error in Lat^2 + Error in Dep^2) ^ 1/2

If you get a number smaller than about 300, you likely made a math mistake

#6 Balance the Latitudes and Departures

3 pts

Adjusted Latitudes		Adjusted Departures	
AB	= LatAB - (Error in Lat)/5	AB	= DepAB - (Error in Lat)/5
BC	= LatBC - (Error in Lat)/5	BC	= DepBC - (Error in Lat)/5
CD	= LatCD - (Error in Lat)/5	CD	= DepCD - (Error in Lat)/5
DE	= LatDE - (Error in Lat)/5	DE	= DepDE - (Error in Lat)/5
EA	= LatEA - (Error in Lat)/5	EA	= DepEA - (Error in Lat)/5

Add up the latitudes then the departures. Both sums should equal zero

#7 Northings and Eastings of each point

2 pts

	Northings	Eastings
A	= Control point value	= Control point value
B	= Value at A + adjusted lat of AB	= Value at A + adjusted dep of AB
C	= Value at B + adjusted lat of BC	= Value at B + adjusted dep of BC
D	= Value at C + adjusted lat of CD	= Value at C + adjusted dep of CD
E	= Value at D + adjusted lat of DE	= Value at D + adjusted dep of DE

Points have Coordinates, Lines do not

#8 Area

1 pt

Use the Coordinate method taught in class/lab

As a shortcut, recalculate the coordinates of each point assuming the control point value was (0,0). Then you will be multiplying smaller numbers

You should get a number less than 23,000 ft^2 or 2,100 m^2

Lab 3 Answers Measured Azimuth _____

#1

Balanced Angles	
A	
B	
C	
D	
E	

Measured Lengths	
AB	
BC	
CD	
DE	
EA	

#2

	Azimuths	Bearings
AB		
BC		
CD		
DE		
EA		

#3

	Latitudes	Departures
AB		
BC		
CD		
DE		
EA		

#4

Linear Error:	
Error in Latitudes	
Error in Departures	

#5

Precision:	

#6

	Adjusted Latitudes	Adjusted Departures
AB		
BC		
CD		
DE		
EA		

#7

	Northings	Eastings
A		
B		
C		
D		
E		

Starting Control Point

#8

Area:	