

Surveying  
Traverse and Areas  
Example 1

Calculate the area of the traverse in acres using DMDs with the meridians through the most westerly point.

SIDE	BALANCED LATITUDES N (+) S (-)	BALANCED DEPARTURES E (+) W (-)
AB	300	500
BC	100	400
CD	0	100
DE	200	600
EA	200	400

COURSE	ADJUSTED LAT. LAT.	LENGTHS DEP.	DMD	DOUBLE AREA + -
A	300	500	500	150000
B	100	400	500 + 500 + 400 1400	140000
C	0	100	1400 + 400 + 100 1900	0
D	-200	-600	1900 + 100 - 600 1400	280000
E	-200	-400	1400 - 600 - 400 400	80000

$$\Sigma = 290000 \quad \Sigma = 360000$$

$$\begin{aligned} 2A &= |\text{DIFFERENCE OF SUMS}| \\ &= |290,000 - 360,000| \\ &= 70000 \text{ ft}^2 \end{aligned}$$

$$\therefore A = \frac{2A}{2} = \frac{70,000 \text{ ft}^2}{2} = 35000 \text{ ft}^2$$

$$\text{CONVERT TO ACRES: } 43560 \text{ ft}^2 = 1 \text{ acre}$$

$$35000 \text{ ft}^2 \left( \frac{1 \text{ acre}}{43560 \text{ ft}^2} \right) = \boxed{0.8 \text{ acres}}$$