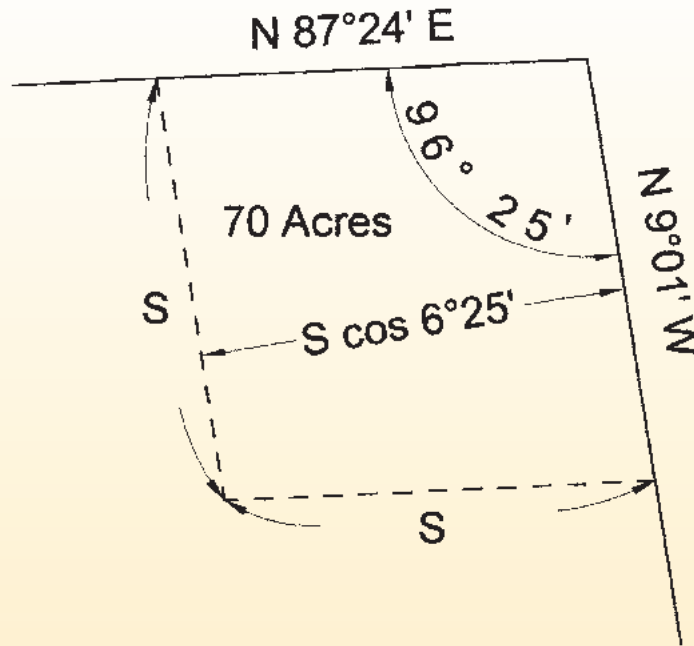


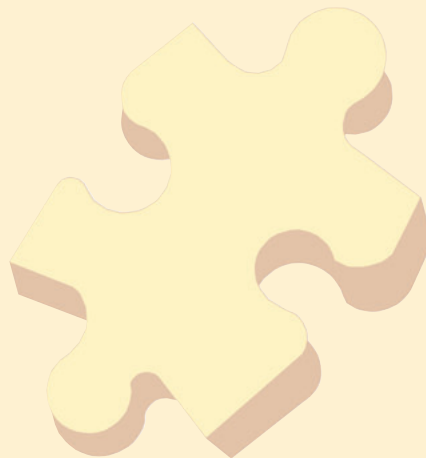
Solution to Problem 89



$$S \times S \cos 6^{\circ}25' = 70 \text{ acres} = 70 \times 43560 = 3,049,200 \text{ ft}^2$$

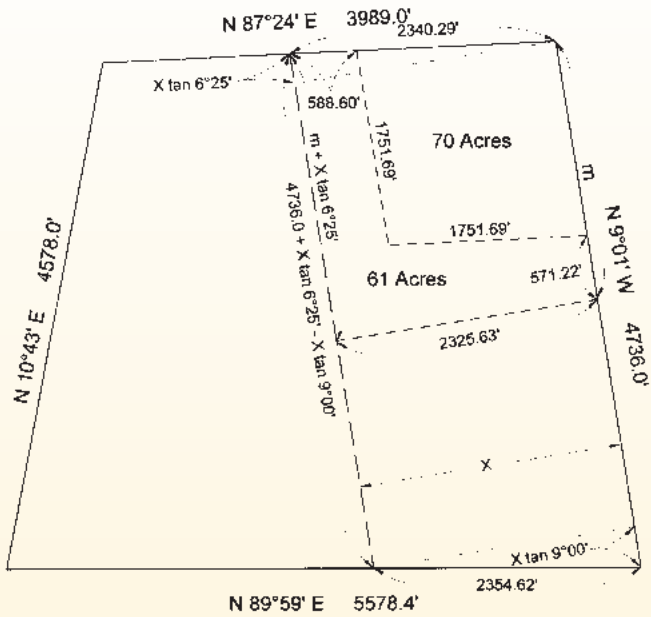
$$S^2 = 3,049,200 \text{ ft}^2 / 0.993735452 = 3,068,422.278 \text{ ft}^2$$

$$S = 1751.69'$$





Solution to Problem 90



The width of the 250 acre parcel must be found first.

The westerly line is $4736.0 + X \tan 6^\circ 25' - X \tan 9^\circ 00'$

250 acres = $250 \times 43560 = 10,890,000$ sq.ft.

$$= (X) \frac{4736 + 4736 + X \tan 6^\circ 25' - X \tan 9^\circ 00'}{2}$$

$$21,780,000 = 9472 X - 0.045921911 X^2$$

From the quadratic equation, $X = 2325.63$

The westerly line of the 250 acre parcel is

$$2325.63 + 2325.63 \tan 6^\circ 25' - 2325.63 \tan 9^\circ 00' = 2325.63 + 261.545 - 368.344 = 2203.83'$$

The southerly line is

$$2325.63 / \cos 9^\circ 00' = 2325.63 / 0.987688341 = 2354.62'$$

The northerly line is

$$2325.63 / \cos 6^\circ 25' = 2325.63 / 0.993735452 = 2340.29'$$

The westerly line of the 61 acre parcel is actually the westerly line of a 131 acre parcel whose southerly line is perpendicular to the easterly line of the 250 acre parcel, so

131 acres = $131 \times 43560 = 5,706,360$ sq. ft. and

$$5,706,360 = X \frac{m + m + X \tan 6^\circ 25'}{2} = 2325.63 \frac{2m + 261.545}{2}$$

from which $m = 2322.91'$

The westerly line of the 61 acre parcel is $2322.91 + 261.545 = 2584.46'$

The northerly short side is $2340.29 - 1751.69 = 588.60'$

The easterly short side is $2322.91 - 1751.69 = 571.22'$