

Answers to "Test Yourself"

Find the Area

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- 1.) Applying the Law of Cosines:

$$x^2 = d^2 + a^2 - 2da \cos X$$

$$1535.7^2 = (510.6 + T)^2 + (731.9 + T)^2 - (2)(510.6 + T)(731.9 + T)(\cos 117^\circ 00')$$

Solving for T, by some "equation solver" or using the Quadratic Equation,
T=276.7494 ft.

- 2.) Compute area of ADX

Solve for A by Law of Sines

$$A = 35^\circ 49' 05''$$

$$\text{Area ADX} = (0.5)(1535.7)(\sin 35^\circ 49' 05'')(787.349)$$

$$\text{Area ADX} = 353,799.98 \text{ ft}^2$$

- 3.) Compute area of BC(arc)X

Solve for radius XB

$$T = XB \tan 63^\circ / 2$$

$$XB = 451.614 \text{ ft}$$

$$\text{Area BC(arc)X} = (XB)(T) - \frac{63^\circ}{360^\circ} \pi (XB)^2$$

$$\text{Area} = (451.614)(276.7494) - \frac{63^\circ}{360^\circ} \pi (451.614)^2$$

$$\text{Area} = 12,853.67 \text{ ft}^2$$

- 4.) Area ADCBA:

$$353,799.98 \text{ ft}^2$$

$$\underline{-12,853.67 \text{ ft}^2}$$

$$340,946.31 \text{ ft}^2$$

