Because the triangles are only known by their side ratios, it will be necessary to find a common integer value for the hypotenuse of each (the diameter of the circle). The product of 5, 13, 25, and 73 will be divisible by all. The other sides of each triangle can then be computed using the given ratios.

It would be very survey-like to call point A, say North 0, East 0, line AF "East" and intersect the distances AB and FB to get North 42,115.3846, East 17,5548.0765 for a coordinate at point B and continue to intersect the distances AC and FC to get a coordinate of North 58,767.1233, East 51,287.6712 for point C and keep intersecting distances to get coordinates of North 56,940.000, East 75,920.000 for point D and North 31,886.4000, East 109,324.8000 for point E and then inverse for distances BC, CD, and DE.

There is an easier way. Ptolemy's Theorem for quadrilaterals says the product of the diagonals is equal to the sum of the products of the opposite sides, or $x \cdot y = a \cdot c + b \cdot d$, where x and y are the diagonals and a, b, c, and d the sides.

In quadrilateral ABCF, AC=x=78,000, BF=y=109,5000, AB=a=45,625, CF=c=89,375, AF=b=118,625 and BC=d is the unknown:

(78,000)(109,500)=118,625d+(45,625)(89,375),so d=BC=37,625

Likewise in quadrilateral ACDF:

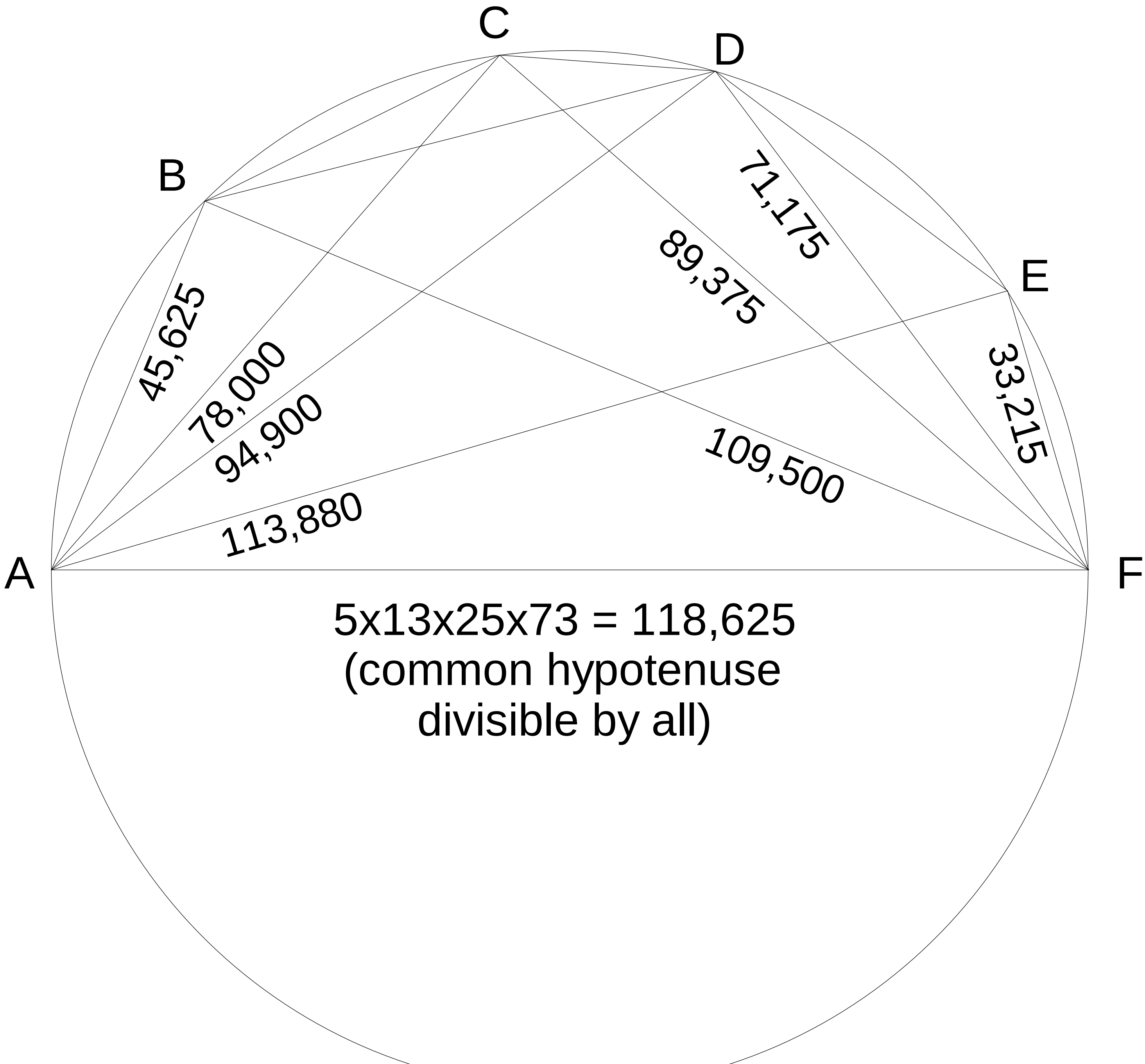
(78,000)(89,375) = (78,000)(71,175)+(118,625)(CD) and CD = 24,700

And finally in quadrilateral ADEF:

(113,880)(71,175) = (94,900)(33,215)+(118,625)(DE) and DE = 41,756

Note that ALL ARE INTEGERS.

Also, triangles of 8:15:17, 9:40:41, 11:60:61, 12:65:97, 13:84:85, 16:63:65, 20:21:29, 28:45:53, 33:56:65, 35:12:57, 36:77:85, and/or 39:80:89 could have been used.



C
D
B
71,175
89,375
E
45,625
33,215
78,000
94,900
109,500
113,880
A
F
5x13x25x73 = 118,625
(common hypotenuse
divisible by all)