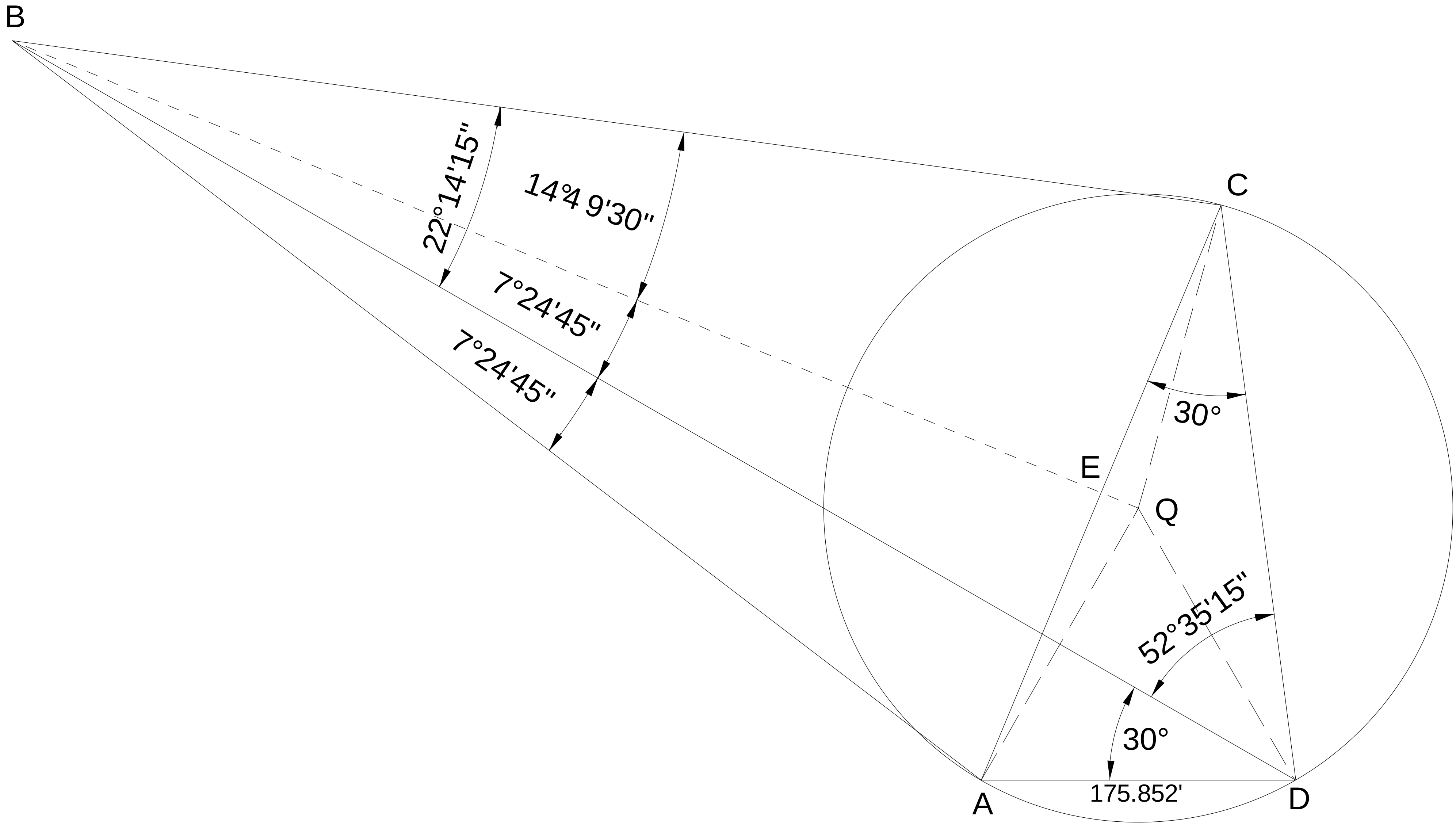
B
C
22°14'15"
14°49'30"
7°24'45"
7°24'45"
30°
E
Q
52°35'15"
30°
175.852'
A
D

Draw BE, the perpendicular bisector of AC.
Construct the circumcircle of triangle ACD, with center at Q.
Triangle AQD is equilateral with a radius of 175.852: AQ = AD = QD = QC.
Point Q lies on the extension of BE.
Let angle ABE which equals angle CBE be $2 \cdot m$
Since angle ADB = 30° and angle ADQ = 60°, then angle BDQ is 30° and BD bisects angle ABQ, but angle ABQ = angle QBC = $2 \cdot m$, so angle DBC = $3 \cdot m$ = 22°14'15" and m = 7°24'45"

$\frac{AB}{\sin 30^\circ} = \frac{175.852}{\sin 7^\circ 24' 45''}$, and **AB** = **BC** = 681.534

AC = $2 \cdot 681.534 \cdot \sin 14°49'30''$ = 348.765

$\frac{AD}{\sin 30^\circ} = \frac{AC}{\sin ADC} = \frac{175.852}{\sin 30^\circ} = \frac{348.765}{\sin ADC}$, so that angle ADC = 82°35'15"

[Also, angle ADC = 180°–22°14'15"–(90°–14°49'30")–30°=52°35'15"]

Angle DAC = 180°–30°–82°35'15' = 676°24'45"

$\frac{CD}{\sin 67^\circ 24' 45''} = \frac{175.852}{\sin 30^\circ}$ and **CD** = 324.726

Angle BDC = angle ADC – 30° = 52°35'15"

$$\frac{BC}{\sin 52^\circ 35' 15''} = \frac{BD}{\sin(75^\circ 10' 30'' + 30^\circ)} = \frac{681.534}{\sin 52^\circ 35' 15''} = \frac{BD}{\sin 105^\circ 10' 30''}$$

and **BD** = 828.131