Proposition IV.11

To inscribe an equilateral and equiangular (regular) pentagon in a given circle

Mallory the DND is a duck that holds Stella’s Dungeons and Dragons dice.

Short biography of Mallory:
Mallory was found on Stella’s honeymoon. The end.

There are six dices in DND, each with a face as a regular polygon.
Except the D10 dice. We don’t like the D10 dice.

We proved how to construct two of these shapes thus far. We proved triangles in Prop.I.1 and squares in Prop.I.46.
These regular polygons are known as platonic solids
Sidebar:
From Prop.III.26-29, we proved that $\angle QPR = \angle YXZ$ if and only if $QR=YZ$ and the arc $QR=arc YZ$.

Steps:
1) Inscribe a golden triangle $ACD$ into a circle. [Prop.4.10]
2) Bisect $\angle ADC$ and extend the bisecting line to the circle at point $E$. [Prop.I.9]
3) Bisect $\angle ACD$ and extend the bisecting line to the circle at point $B$. [Prop.I.9]
4) Draw straight lines between $A$ and $E$, $B$ and $E$, $E$ and $D$, $C$ and $B$, $E$ and $B$, $E$ and $C$, and $B$ and $D$. [Postulate 1]

Claim: ABCDE is regular

Proof:
From the definition of a golden triangle, we know $\angle CAD=\angle ADB=\angle BDC=\angle ECD=\angle BCE$
Thus, $CD=AB=BC=ED=AE$ [Sidebar]