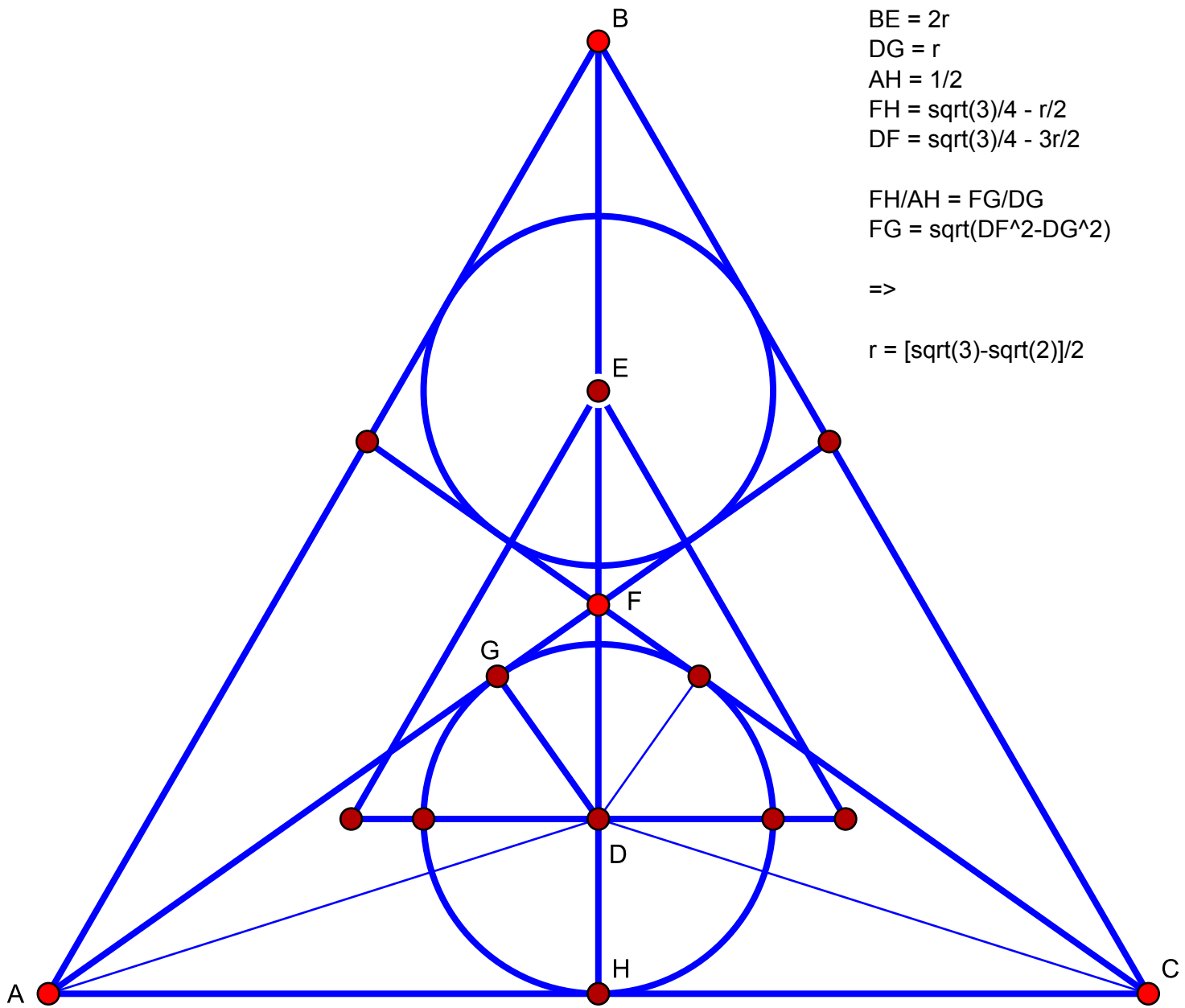

BE = 2r
DG = r
AH = 1/2
FH = sqrt(3)/4 - r/2
DF = sqrt(3)/4 - 3r/2

FH/AH = FG/DG
FG = sqrt(DF^2-DG^2)

=>

r = [sqrt(3)-sqrt(2)]/2