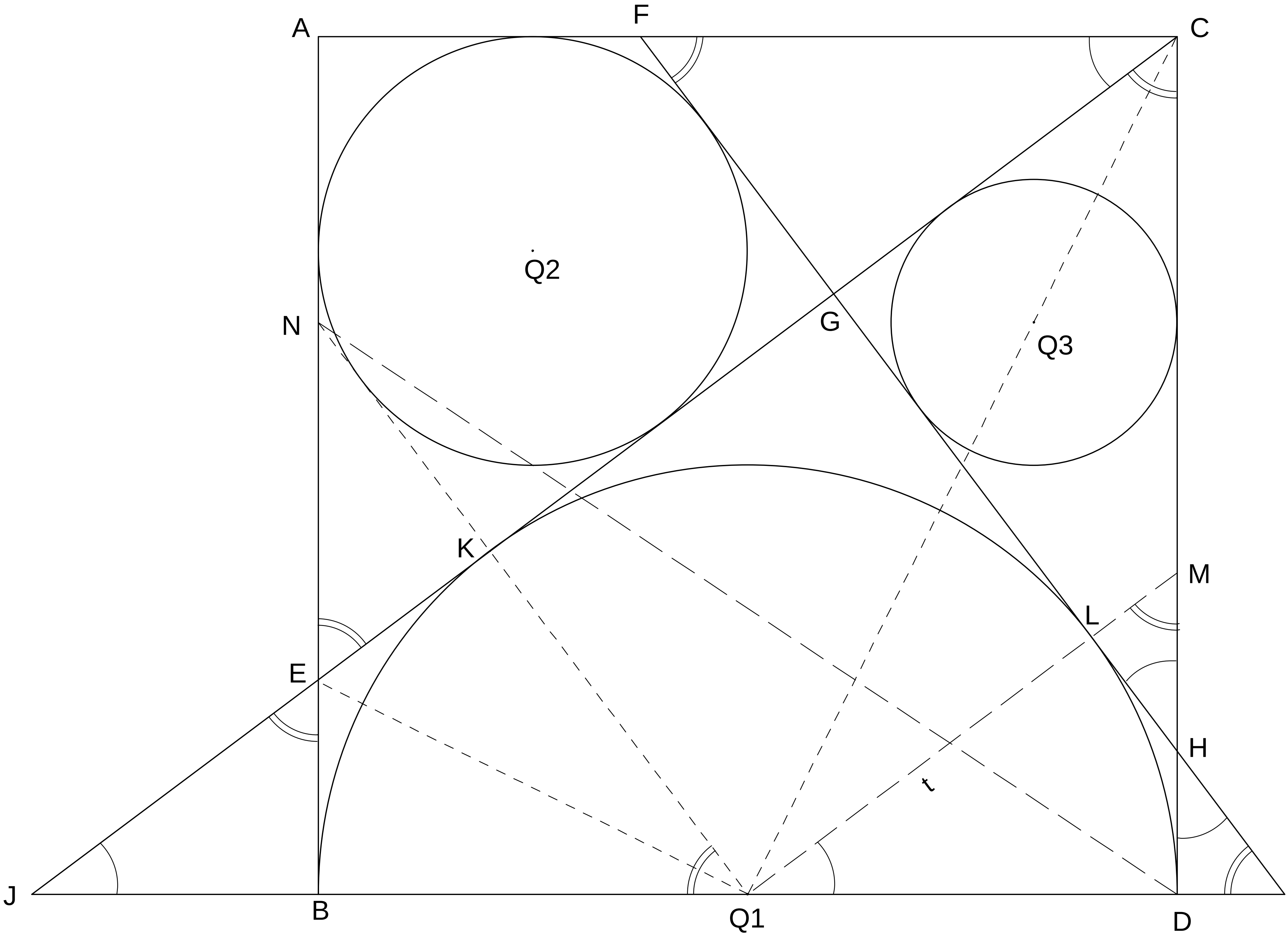
A
F
C
Q2
N
G
Q3
K
M
L
E
H
t
J
B
Q1
D

Draw lines E-Q1, C-Q1 and Q1-K, perpendicular to EC. Extend Q1-K to AB at N.

BE = EK and KC = CD because they are tangents to Q1 from E and C.

C-Q1-E = 90° because Q1-E and Q1-C bisect supplementary angles.

Q1-K is also the altitude of triangle E-Q1-C, so $[K \bullet (Q1)]^2 = CK \cdot EK$ .... [1]

Extend BD, CE and FH as shown and drop a perpendicular to FH from Q1 at L.

Mark all known equal angles, noting the ones at Q1 are complementary, making K-Q1-L a right angle and therefore CE $\perp$ FH and Q1-K-G-L a square, with side t:

$AC^2 + (AB - EB)^2 = CE^2$, or $s^2 + (s - EB)^2 = (s + EK)^2 = (s + EB)^2$, from which

$s = 4 \cdot EB$, and $EB = \frac{s}{4}$, so $AE = \frac{3 \cdot s}{4}$ = EG and $KG = EG - \frac{s}{4} = \frac{s}{2} = t$

From [1], $t^2 = S \cdot EK = 2 \cdot t \cdot EK$, and $EK = \frac{t}{2} = BE$

$AE = EK + KG = \frac{t}{2} + t = \frac{3 \cdot t}{2}$

$AC = 2 \cdot t$, $AE = \frac{3 \cdot AC}{4}$ and ACE is a 3:4:5 triangle as are all like it.

From $r = \frac{a \cdot b}{a + b + c}$

The radius of Q2 = $\frac{\frac{3 \cdot s}{4} \cdot s}{\frac{3 \cdot s}{4} + s + \frac{5 \cdot s}{4}} = \frac{s}{4}$ and radius of Q3 = $\frac{\frac{2 \cdot s}{3} \cdot \frac{s}{2}}{\frac{s}{2} + \frac{2 \cdot s}{3} + \frac{5 \cdot s}{6}} = \frac{s}{6}$

And their ratio is $\frac{\frac{s}{4}}{\frac{s}{6}} = \frac{2}{3}$