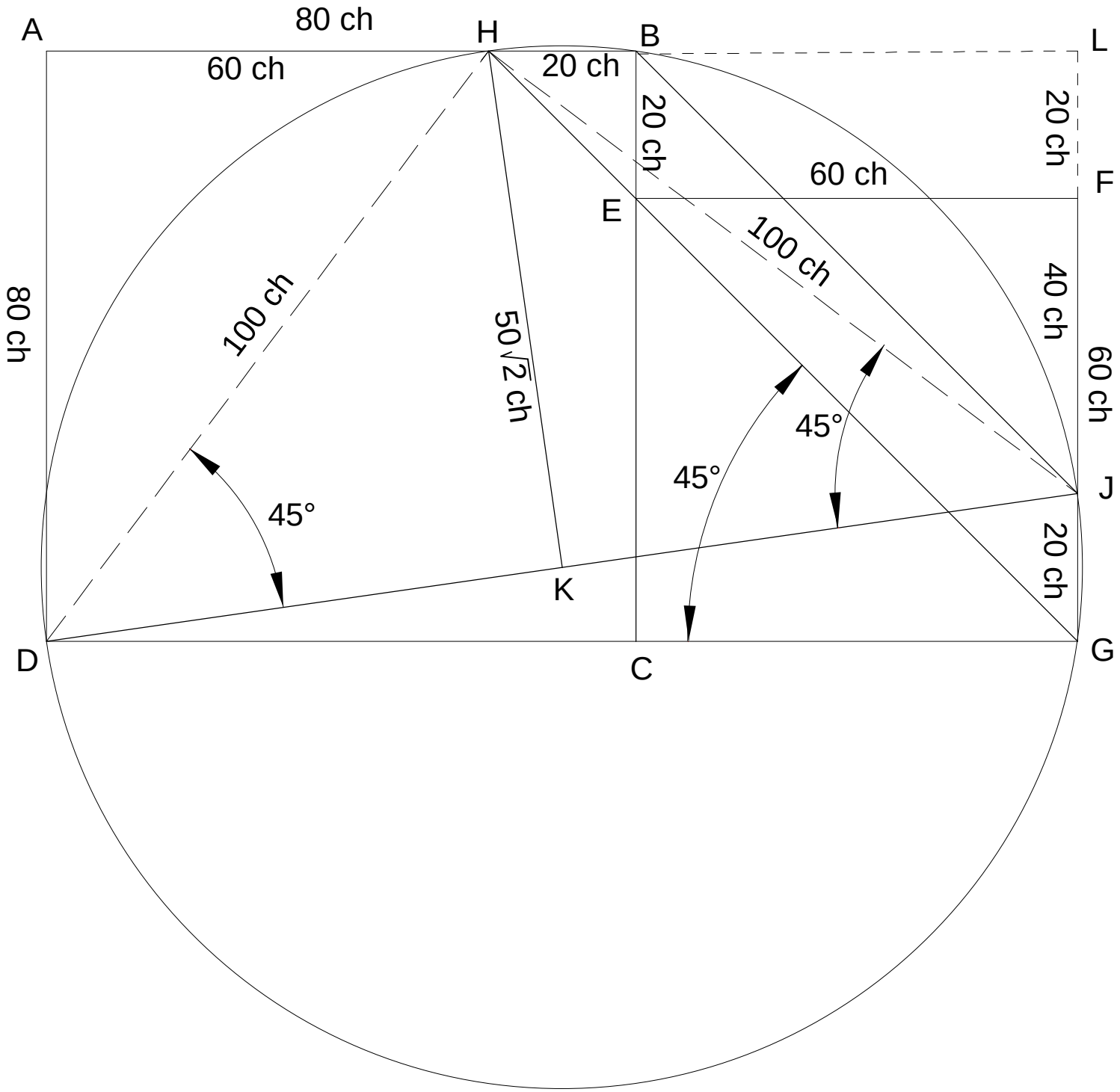
2 squares solution



2 squares answer

Square ABCD being 640 acres is 80 *chains* on a side. Square CEFG being 360 acres is 60 *chains* on a side.

Extend AHB to intersect GJF extended at L. BE can be seen to be 20 chains, so BE = FL = JG = BH (because angle BEH = 45°).

Draw DH and HJ. AH = 60 ch, AD = 80 ch and DH = 100 ch.

HB + BL = 80 ch, JL = GF – GJ + FL = 60 ch, so JH = 100 ch.

Construct a circle through D, H, J, and G using the intersection of the perpendicular bisectors of DH and GJ as a radius point. Points D, H, G, and J will all lie on the same circle now.

Angle DGH equals 45° because GE is the diagonal of a square. Angle DJH is also 45° because it subtends the same arc of the circle.

Triangle DHJ is an isosceles right triangle in which angle HDJ equals 45° also.

K is the midpoint of DJ and HK $= 100 \cdot \frac{\sqrt{2}}{2} =$ 70.7107 ch = 4,666.905 ft.

(K is incidentally the radius point)