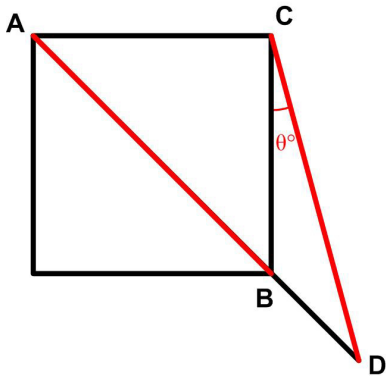# Elusive Angle

18 January 2025

Jim Stevenson

For me this turned out to be sort of a challenging problem from the 2025 Math Calendar ([1]).

Given equal line segments AB = CD, what is angle θ in degrees?

Solution

I initially played around with a square with diagonal CD rotated in a circle with radius CA. It looked like I wanted to find a 30° angle that I could subtract from 45° to get an answer of 15°. So I started looking for a 30-60 right triangle and suddenly there it was. So the answer was even simpler to arrive at.

The other half diagonal of the square was perpendicular to the original diagonal and made a 30-60 right triangle (Figure 1). Therefore α + θ = 60°. But α = 45°, so θ = 15°.
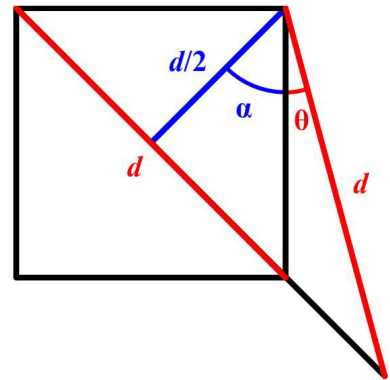
(Whiff of a Coffin Problem.)

Figure 1

References

[1] Rapoport, Rebecca and Dean Chung, *Mathematics 2025: Your Daily epsilon of Math*, American Mathematical Society, 2025. July