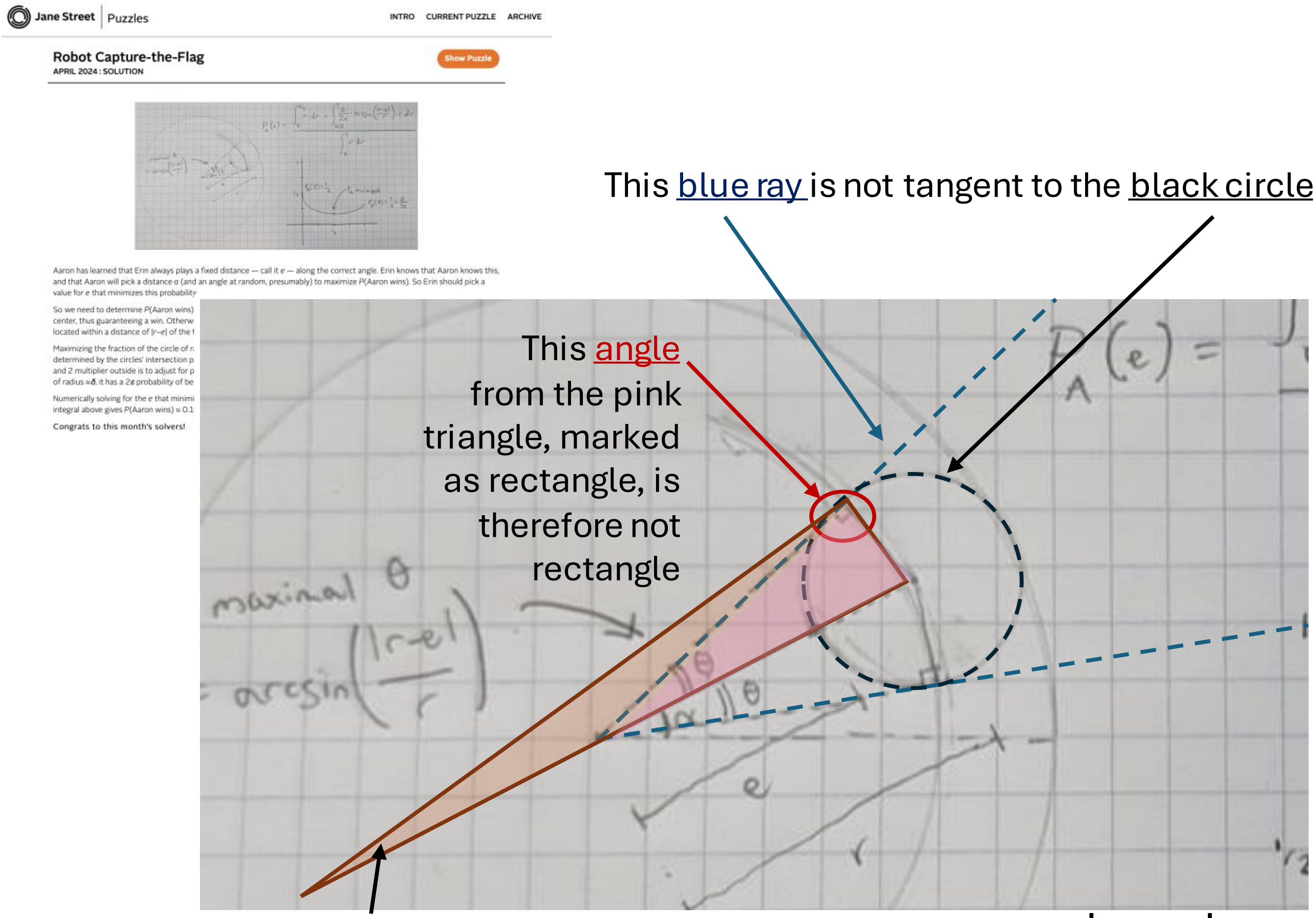
Proposed drawing:



$$\text{Angle} = \arcsin\left(\frac{|r-e|}{2r}\right) \qquad \theta = 2 * \arcsin\left(\frac{|r-e|}{2r}\right)$$

Accurate drawing below:

We can prove that $\alpha = 2\ \beta$