

Practice: 82%

B

Projects: ~~3E~~, ~~2M~~
~~2E~~, ~~3M~~

A

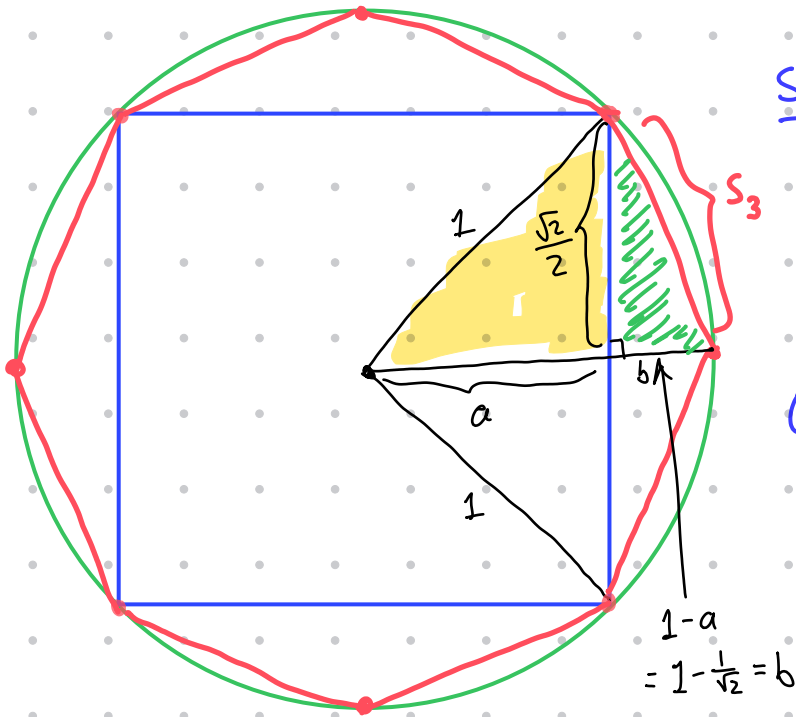
Final: E

A

Challenge: ~~4E~~ M

A

A-



Square: $4 = 2^2$ -gon

side length: $S_2 = \sqrt{2}$

approx: $\pi_2^i = \frac{4\sqrt{2}}{2} = 2\sqrt{2} \approx 2.82\dots$

Octagon: 2^3 -gon

$$a = \sqrt{1^2 - \left(\frac{\sqrt{2}}{2}\right)^2} = \frac{1}{\sqrt{2}}$$

$$b = 1 - \frac{1}{\sqrt{2}}$$

$$S_3 = \sqrt{b^2 + \left(\frac{\sqrt{2}}{2}\right)^2} = \sqrt{\left(1 - \frac{1}{\sqrt{2}}\right)^2 + \left(\frac{\sqrt{2}}{2}\right)^2}$$

$$S_3 = \sqrt{2 - \sqrt{2}}$$

approx: $\pi_3^i = \frac{8S_3}{2} = 4\sqrt{2 - \sqrt{2}}$

$$\approx 3.06\dots$$

exact: $3.14159\dots$