



- Assume the pizzas each have a radius of 1.
- $\overline{AB} = \overline{BC} = \overline{AC} = \overline{AD} = \overline{DC} = 1$
- So ΔABC and ΔACD are equilateral, and $\angle BAC = \frac{\pi}{3}$ radians.
- The total area of the "football" is equal to the area of ΔABC times two, plus the area of the yellow pieces.

The area of ΔABC is $\frac{\sqrt{3}}{4}$.

The area of one yellow piece is equal to the area of the circular sector between \overline{AB} and \overline{AC} minus the area of ΔABC , or:

$$\frac{\pi}{6} - \frac{\sqrt{3}}{4}$$

$$\text{Four yellow pieces} = 4\left(\frac{\pi}{6} - \frac{\sqrt{3}}{4}\right) = \frac{2\pi - 3\sqrt{3}}{3}$$

$$\text{Area of one "football"} = \frac{2\pi - 3\sqrt{3}}{3} + 2\left(\frac{\sqrt{3}}{4}\right) = \frac{4\pi - 3\sqrt{3}}{6}$$

$$\text{Area of two "footballs"} = \frac{4\pi - 3\sqrt{3}}{3} \approx 2.46$$

The total area of a "crescent" is equal to the area of one pizza (i.e., π) minus the area of one "football":

$$\text{Area of a "crescent"} = \pi - \frac{4\pi - 3\sqrt{3}}{6} = \frac{2\pi + 3\sqrt{3}}{6}$$

$$\approx 1.91$$