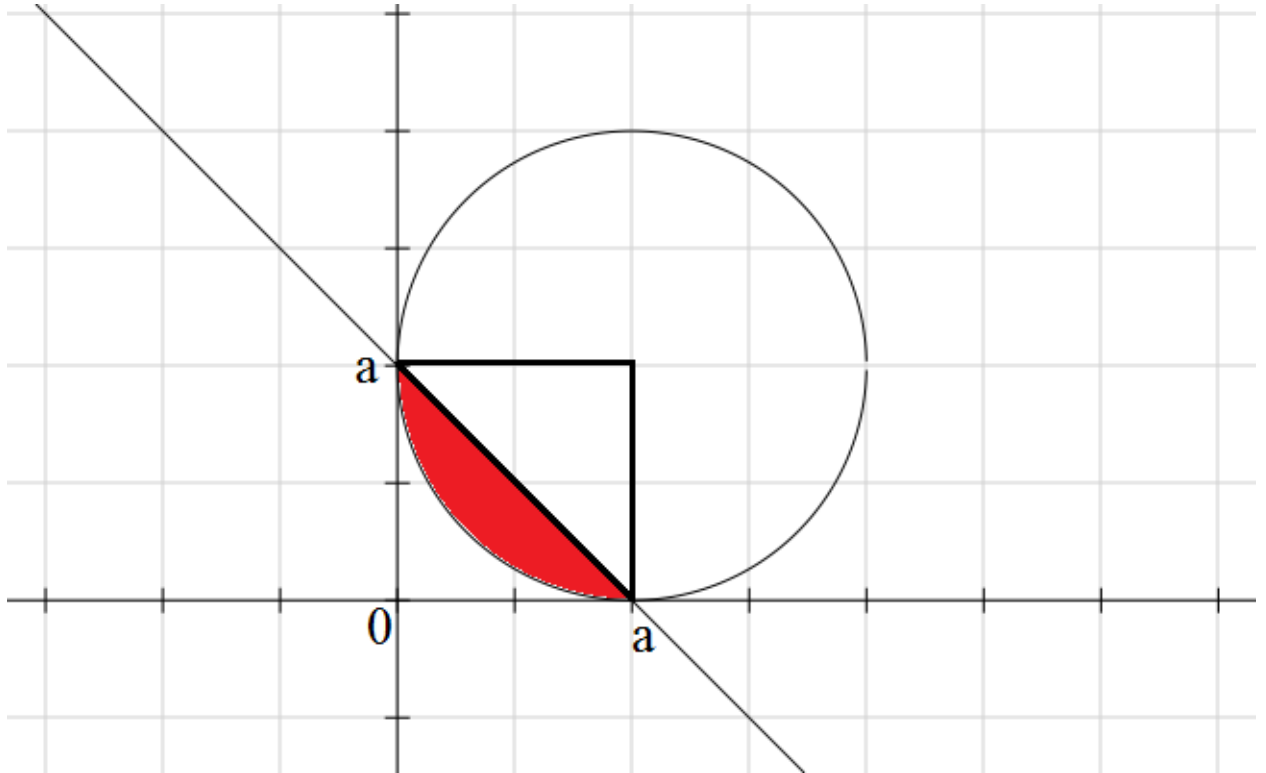


Answer on Question #53405 - Math - Analytic Geometry

Question

A circle has equation $(x-a)^2 + (y-a)^2 = a^2$ where a is a constant. The line $y+x-a=0$ splits the area of the circle into 2 parts, A_1 and A_2 where $A_1 > A_2$. Find the area of A_2 giving your answer in the form $((a^2)/b) * (c * \pi + d)$ where b , c , and d are integers.

Solution



A_2 is red and the right triangle is shown by means of black thick segments in figure. Area of A_2 equals circular sector area minus area of the right triangle:

$$S(A_2) = \frac{\pi a^2}{4} - \frac{1}{2} a^2 = \frac{a^2}{2} \left(\frac{\pi}{2} - 1 \right)$$

Answer: $\frac{a^2}{2} \left(\frac{\pi}{2} - 1 \right)$.