4 Center of mass IV

Based on the coordinate system, show that the Center of mass in the x and y direction of the following shaded area using the definition below is equal to:

\[ \bar{X} = \frac{a(n+1)}{n+2} \quad \text{and} \quad \bar{Y} = \frac{a^*c(n+1)}{4n+2} \]

\[ \bar{X} = \frac{\int \int x \, dy \, dx}{\int \int dy \, dx} \quad \text{and} \quad \bar{Y} = \frac{\int \int y \, dy \, dx}{\int \int dy \, dx} \]