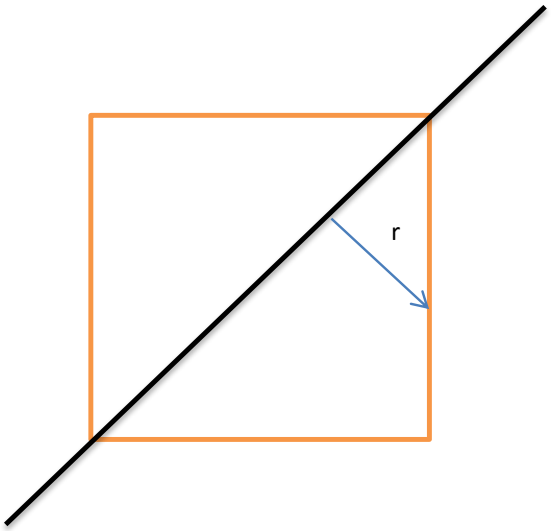
Moment of inertia equals:

$I = \int r^2 dm$



For one side:

$I_1 = \int r^2 dm$,

where $r = x\ sin45 = \frac{x}{\sqrt{2}}$

and $dm = \frac{dx}{a} * \frac{m}{4}$ - lamina is uniform and one side has mass $\frac{m}{4}$

$I_1 = \frac{m}{4a} \int_0^a \frac{x^2}{2} dx = \frac{m}{4a} \frac{1}{2} \frac{a^3}{3} = \frac{m}{4} * \frac{1}{6} a^2$

Total moment of inertia equals:

$I = 4I_1 = \frac{1}{6} ma^2$

Answer: $I = \frac{1}{6} ma^2$