$x = x$, $y = x^2$, $-2 \leq x \leq 1$,

$W = \int_{-2}^{1} \langle x \sin x^2, x^2 \rangle \cdot \langle 1, 2x \rangle \, dx = \int_{-2}^{1} (x \sin x^2 + 2x^3) \, dx$

$= \left[-\frac{1}{2} \cos x^2 + \frac{1}{2} x^4 \right]_{-2}^{1} = \frac{1}{2}(-15 + \cos 4 - \cos 1)$.