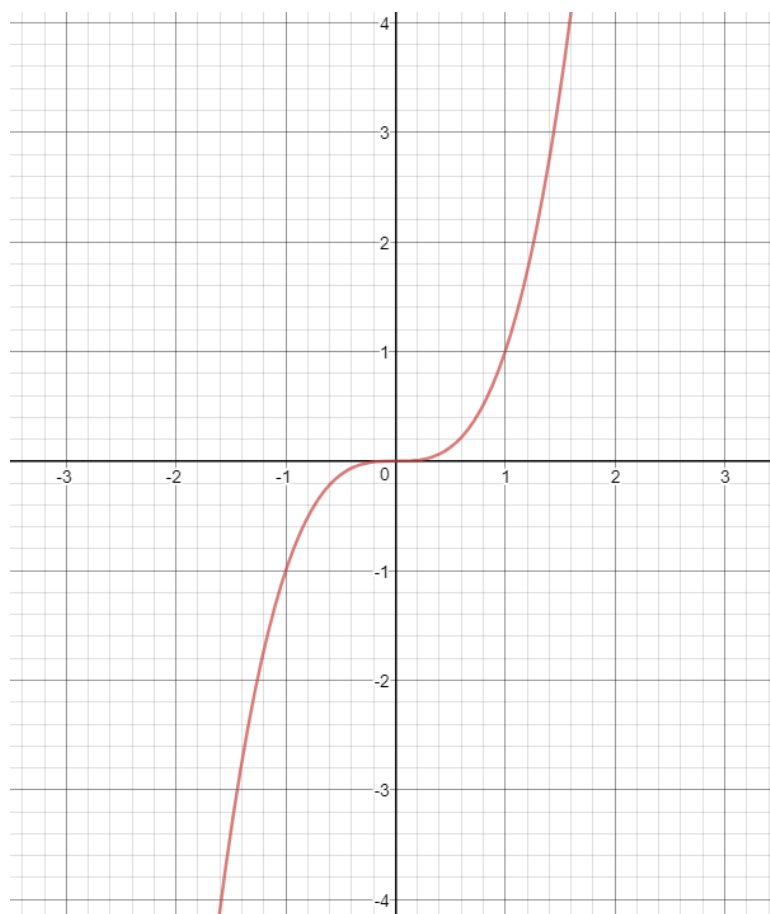**Question**

Any curve in 2D that is symmetric about the origin is also symmetric with respect to both the axes. Is the statement true? Give reason for your answers either with a short proof or a counterexample.

Solution

The statement is false.

Counterexample: $f(x) = x^3$.

The graph is symmetric about the origin, but it is not symmetric about any of the axes.