

11.3: Liouville's Theorem- Local Gas Density is Constant along a Phase Space Path

The falling bodies phase space square has one more lesson for us: visualize now a uniformly dense gas of points inside the initial square. Not only does the gas stay within the distorting square, the area it covers in phase space remains constant, as discussed above, so *the local gas density stays constant as the gas flows through phase space*.

Liouville's theorem is that this constancy of local density is true for general dynamical systems.

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