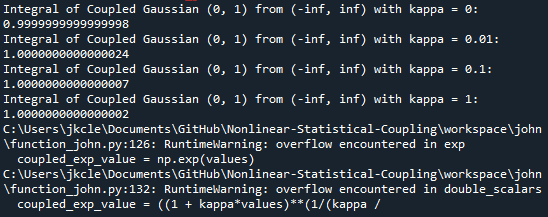
**Quad Integration in Coupled Probability and Entropy Functions**

1. General Thoughts
   1. Might want to separate coupled function like coupled exponential and log from coupled probability and entropy functions into different modules, due to some acting on arrays and others on functions.
   2. The integration can be slow.
   3. Functions may not be working properly, so more testing is needed.
2. Coupled Probability
   1. Changes to other functions
      1. Had to comment out assertion in the CoupledNormal class’ prob method to work with quad because it required arrays and it was being passed scalars.
   2. Errors and Warnings in test file

I think the warnings encountered are due to values small for the numpy float64 data type when the density is very small (namely for small coupling values) in the coupled\_exponential function. I think it is coming from the integration within the quad function.

* + 1. Results from integrating the PDF of a Coupled Gaussian (0, 1) with kappas in {0, 0.01, 0.1, 1)



1. Coupled Cross-Entropy
   1. Not sure how to handle distributions with different supports. Should we pass them a list of support tuples? What if the realized supports are different?
   2. Coupled Probability still returns an array for the transformed densities over the realized array.