Value of dot product

[Award] **7 pts**

[Category] **Probability**

There are two random vectors ***a*** = [*a*1, *a*2] and ***b*** = [*b*1, *b*2]. Let *s* be the dot product of these two vectors, that is *s* = ***a***·***b*** = *a*1*b*1 + *a*2*b*2.

Assume *a*1, *a*2, *b*1, *b*2 are mutually independent random variables of the uniform distribution on the interval [0, 2]. Find the probability of value *s* less than 5 and the expected value of *s*. Give your answer rounded to 8 digits after the decimal point.

Answer format: [probability],[expected value]

(Sample input: 0.12345678,1.23456789)

Thanks to **baihacker** for the idea.

[Answer] **0.98092367,2.00000000**