

# Re: Relationship between Pearson rho and Kendall tau

---

*Source:* <http://sci.tech-archive.net/Archive/sci.stat.math/2008-07/msg00000.html>

---

- *From:* Ray Koopman <koopman@xxxxxx>
  - *Date:* Mon, 30 Jun 2008 15:16:54 -0700 (PDT)
- 

On Jun 30, 2:20 pm, "Schizoid Man" <sc...@xxxxxxxxxxxxxxxxxxxx> wrote:

"Ray Koopman" <koop...@xxxxxx> wrote in message news:

On Jun 30, 1:48 pm, "Schizoid Man" <sc...@xxxxxxxxxxxxxxxxxxxx> wrote:

Hello,

Does the following relationship always hold, or are there are specific conditions that they need to be applied under?  
 $\tau = 2 * \arcsin(\rho) / \pi$

Thanks,  
Schiz

In a bivariate normal population in which the Pearson correlation is rho, the expected value of a sample tau is  $\arcsin(\rho)/(\pi/2)$ .

Thanks, Ray. Though I'm not sure how  $(2/\pi) \arcsin(\rho)$  is different from  $\arcsin(\rho) / (\pi/2)$ .

It's not. I write it that way because it comes closer to describing what's happening: you're dividing an angle,  $\arcsin(\rho)$ , by its maximum possible value,  $\pi/2$ , to get a value that is in  $[-1,1]$ .