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*On some definite integrals involving the Hurwitz Zeta Function.*

Using the Fourier series expansion of the Hurwitz Zeta Function  $\zeta(z, q)$ , we establish the formula

$$\int_0^1 \zeta(z', q)\zeta(z, q) dq = -\zeta(z + z' - 1)B(1 - z, 1 - z') \frac{\cos(\pi(z - z')/2)}{\cos(\pi(z + z')/2)},$$

valid for  $\Re(z), \Re(z') \leq 0$ , where  $\zeta(s)$  is the Riemann Zeta function and  $B(x, y)$  is the Beta function. As special cases of this formula we obtain a series of integral formulae involving the Bernoulli polynomials,  $\log \Gamma(q)$  and  $\log \sin(\pi q)$ . (Received September 22, 2000)