

Maths of the Day

$$\int_0^1 \frac{x \log(1-x) \log(x)}{1+x^2} dx = \frac{1}{16} \left(\frac{41}{4} \zeta(3) - 9 \log(2) \zeta(2) \right)$$

$$\int_0^1 \frac{x \log(1+x) \log(x)}{1+x^2} dx = \frac{1}{16} \left(3 \log(2) \zeta(2) - \frac{15}{4} \zeta(3) \right)$$