PROOF OF FORMULA 3.246

$$\int_0^\infty \frac{(1 - x^q)x^{p-1}}{1 - x^r}\, dx = \frac{\pi}{r} \sin\left(\frac{\pi q}{r}\right) \operatorname{cosec}\left(\frac{\pi p}{r}\right) \operatorname{cosec}\left(\frac{\pi(p+q)}{r}\right)$$

This is exactly entry 3.247.2 replacing (r, q, p) by (np, p, ν).