PROOF OF FORMULA 3.251.11

$$\int_0^\infty x^{\mu-1}(1+bx^p)^{-\nu}\,dx = \frac{b^{-\mu/p}}{p}B\left(\frac{\mu}{p},\nu-\frac{\mu}{p}\right)$$

Let $t = bx^p$ to obtain

$$\int_0^\infty x^{\mu-1}(1+bx^p)^{-\nu}\,dx = \frac{1}{pb^{\mu/p}}\int_0^\infty \frac{t^{\mu/p-1}\,dt}{(1+t)^\nu}$$

and the result follows from the representation

$$B(a,b) = \int_0^\infty \frac{t^{a-1}\,dt}{(1+t)^{a+b}}.$$