PROOF OF FORMULA 3.249.6

$$\int_0^1 (1-\sqrt{x})^{p-1}\,dx = \frac{2}{p(p+1)}$$

Let $y = 1 - \sqrt{x}$ to obtain

$$\int_0^1 (1-\sqrt{x})^{p-1}\,dx = -2\int_0^1 y^{p-1}(y-1)\,dy.$$

Each integral is elementary.