Exact Models

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$$\int_0^{+\infty} x^n e^{-x^r}\,\mathrm{d}x = |x^r = t| = \frac{1}{r}\int_0^{+\infty} t^{1+\frac{n-r}{r}} e^{-t} t^{\frac{1}{r}-1}\,\mathrm{d}t = \frac{1}{r}\int_0^{+\infty} t^{\frac{n+1}{r}-1} e^{-t}\,\mathrm{d}t = \frac{1}{r}\Gamma\left(\frac{n+1}{r}\right) \tag{1}$$