Feynman integrals

$$\frac{1}{A_1 \cdots A_n} = \int_0^1 dx_1 \cdots dx_n \, \frac{\delta(\Sigma x_i - 1)\cdot (n-1)!}{(x_1 A_1 + \cdots + x_n A_n)^n}$$

in particular

$$\frac{1}{ab} = \int_0^1 d\alpha \, \frac{1}{(\alpha a + (1-\alpha) b)^2}$$

$$\int \frac{d^d k}{(2\pi)^d} \, \frac{1}{(k^2 - \Delta)^n} = \frac{(-)^n i}{(4\pi)^{d/2}} \, \frac{\Gamma(n - d/2)}{\Gamma(n)} \, \frac{1}{\Delta^{n - d/2}}$$

$$\int \frac{d^d k}{(2\pi)^d} \, \frac{k^2}{(k^2 - \Delta)^n} = \frac{(-)^{n-1} i}{(4\pi)^{d/2}} \, \frac{d}{2} \, \frac{\Gamma(n - \frac{d}{2} - 1)}{\Gamma(n)} \, \frac{1}{\Delta^{n - \frac{d}{2} - 1}}$$

$$\Gamma\left(\frac{\varepsilon}{2}\right) = \frac{2}{\varepsilon} - \gamma + \cdots$$