

# Exponetry

$\approx ?$

$$\frac{x^s}{\Gamma(1+s)} \approx \frac{1}{\pi} \int_{-\pi}^{\pi} e^{\cos(\theta)x} \sin\left(\sin(\theta)x + \frac{\pi}{4}\right) \sin\left(\theta s + \frac{\pi}{4}\right) \cdot d\theta, \text{ for } s \geq \frac{-1}{2}$$

$$\frac{\Gamma(-s)}{x^{-s}} \approx \frac{-1}{\sin(\pi s)} \int_{-\pi}^{\pi} e^{\cos(\theta)x} \sin\left(\sin(\theta)x + \frac{\pi}{4}\right) \sin\left(\theta s + \frac{\pi}{4}\right) \cdot d\theta, \text{ for } s \geq \frac{-1}{2}$$

$$f^\alpha(t) \approx \frac{1}{\pi} \int_{-\pi}^{\pi} \int_0^t e^{\cos(\theta)(t-\tau)} \sin\left(\sin(\theta)(t-\tau) + \frac{\pi}{4}\right) \sin\left(\theta\alpha - \theta + \frac{\pi}{4}\right) f(\tau) \cdot d\tau \cdot d\theta$$