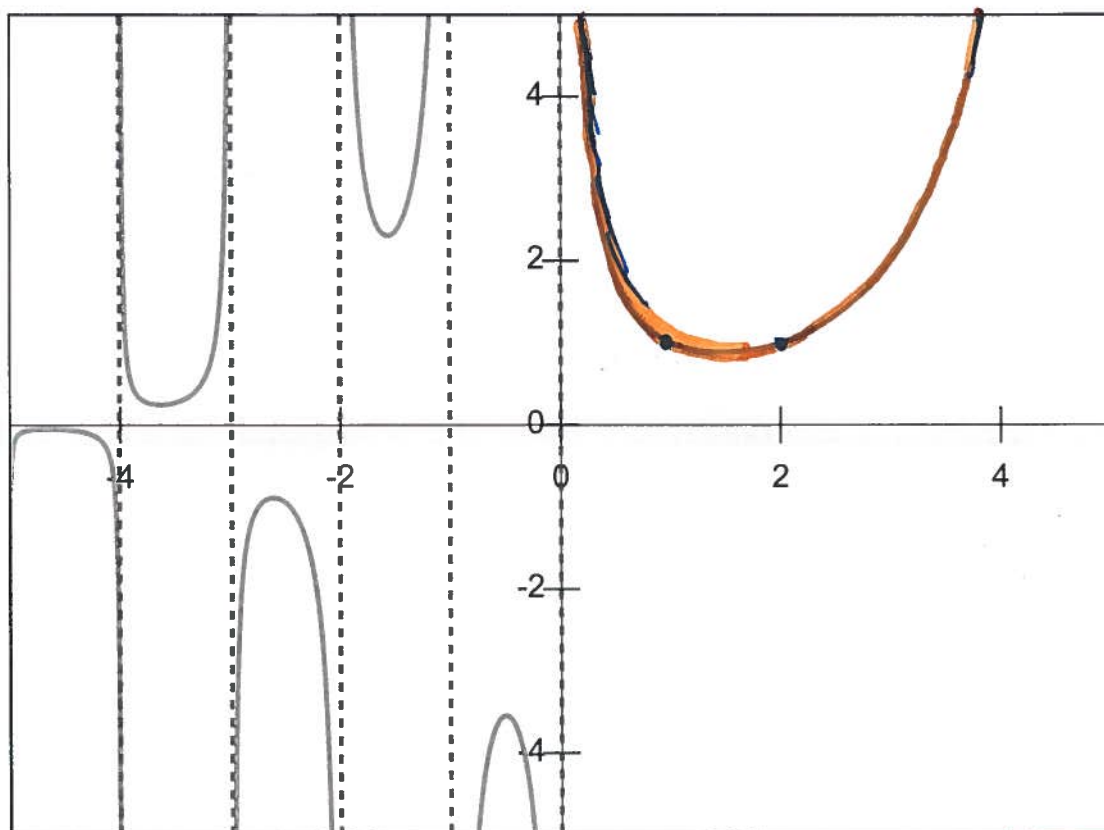


Gamma function

$\Gamma(x)$



EULER

$$n! = \int_0^{\infty} t^n e^{-t} dt$$

$$\Gamma(x) = \int_0^{\infty} t^{x-1} e^{-t} dt$$

$$n! = \Gamma(n+1)$$

$$\mathcal{L}\{t^a\} = \frac{\Gamma(a+1)}{\Delta^{a+1}}$$

$$\mathcal{L}\{t^n\} = \frac{n!}{\Delta^{n+1}}$$

LEGENDRE

$$\Gamma(x+1) = x\Gamma(x) \quad \Gamma(x)\Gamma(1-x) = \frac{\pi}{\sin(\pi x)}$$

$$\frac{1}{2}! = \Gamma(1 + \frac{1}{2}) = \frac{1}{2}\Gamma(\frac{1}{2}) = \frac{\sqrt{\pi}}{2}$$