$$\sin x = \sum_{n=0}^{\infty} (-1)^n \frac{x^{2n+1}}{(2n+1)!}, \forall x$$

$$\cos x = \sum_{n=0}^{\infty} (-1)^n \frac{x^{2n}}{(2n)!}, \forall x$$

$$e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!}, \forall x$$

→ Use these to find the Taylor series below:

1. $f(x) = x^2 e^x$, Maclaurin series

2. $f(x) = e^{-x^2}$, Maclaurin series.

3). $A = \int_0^1 \sin(x^2)\,dx$ Express as an infinite series!