

1) Calculate

$$\frac{d^{447}f}{dx^{447}}$$

for

a) $f(x) = e^x$

b) $f(x) = \sinh x$

c) $f(x) = \sin x$

2) Evaluate

$$I = \int x^2 \cos x \, dx = \int f'(x) \, dx = f(x)$$

by assuming a function of the form

$$f(x) = Ax^2 \cos x + Bx^2 \sin x + Cx \cos x + Dx \sin x + E \cos x + F \sin x,$$

differentiating it, and choosing the constants A , B , C , D , E and F accordingly.