Quiz 21

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

(b) $x^4 \cos x^2 = \sum_{n=0}^{\infty} \frac{(-1)^n x^{4n+4}}{(2n)!}$

(c) $x^{100} \sim 4n+4 = 100, \quad n = 24$

$\therefore \quad \frac{f^{(100)}(0)}{100!} = \frac{(-1)^{24}}{(48)!} \Rightarrow$

$f^{(100)}(0) = \frac{100!}{48!}$