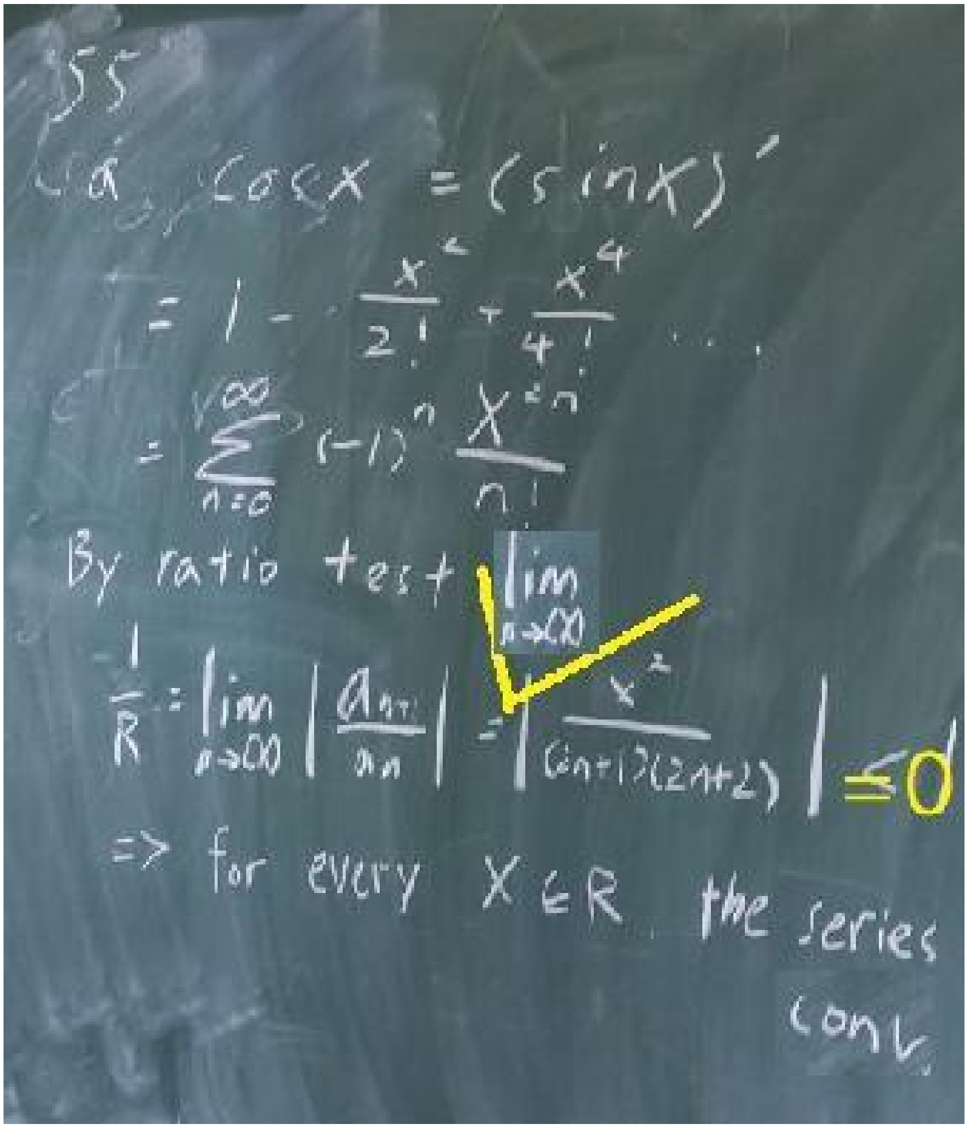
Brief solutions to selected problems in homework week 4

1. Section 10.7, problem 55:



b.

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

is also conv. for all x

then let $f(x) = 2x$

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

is also conv. for all x

conv.

$$= 2x - \frac{8x^3}{3!} + \frac{32x^5}{5!} - \dots$$

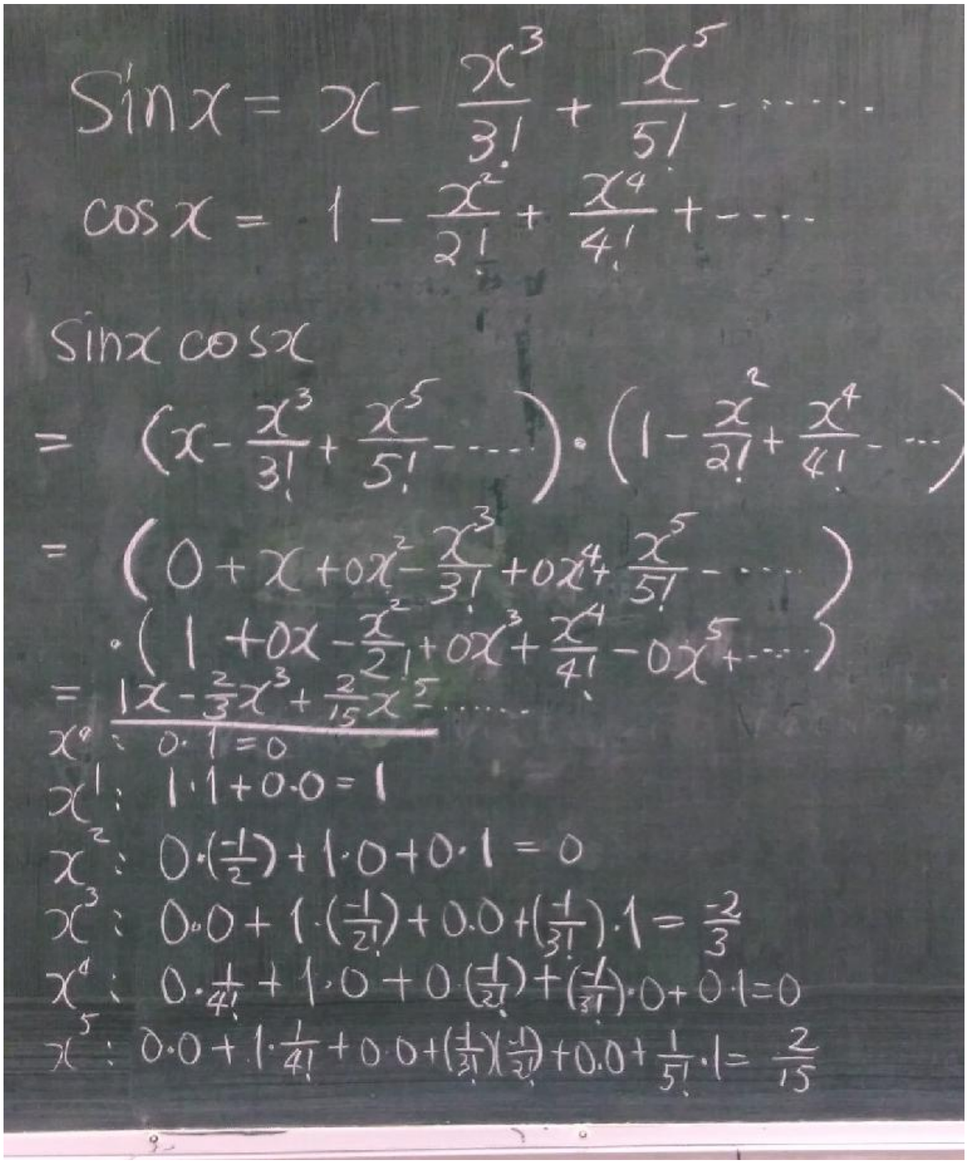


Figure 1: Section 10.7, problem 55