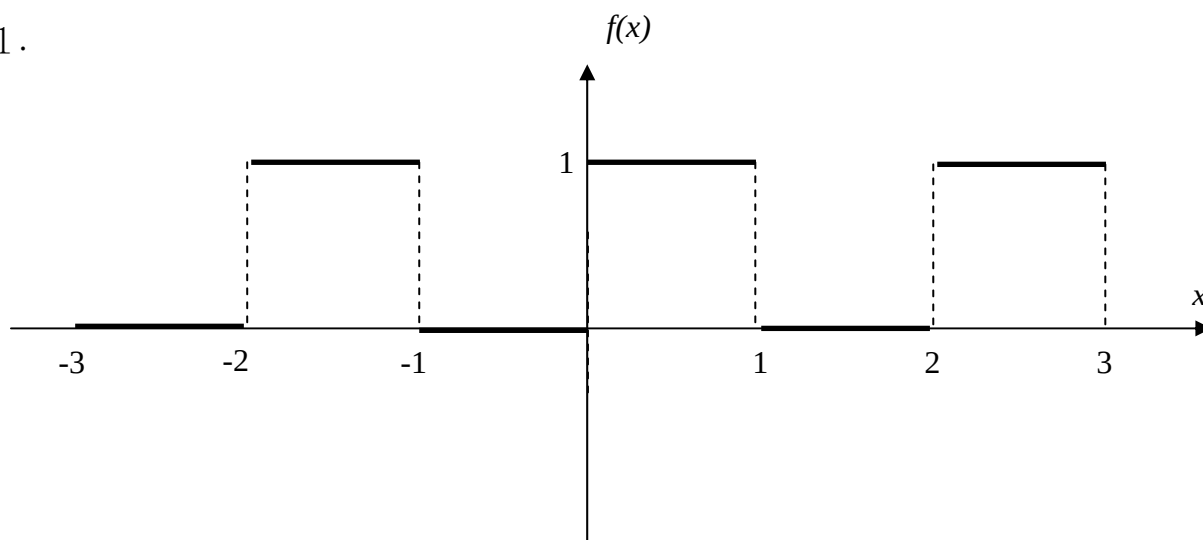


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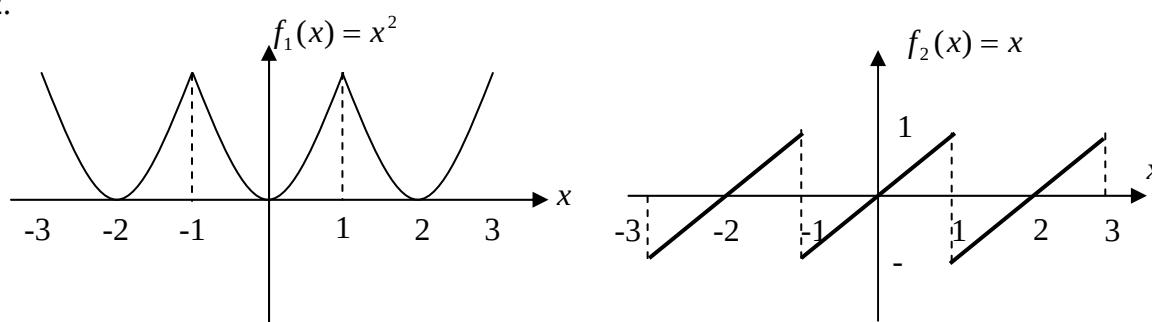
國立台灣海洋大學河海工程學系 2004 工程數學（三）第七次小考

1.



- (1) Decompose the function into $y_e(x)$ and $y_o(x)$ and plot $y_e(x)$ and $y_o(x)$.
- (2) Expand $y_e(x)$ in terms of Fourier series.
- (3) Expand $y_o(x)$ in terms of Fourier series.
- (4) Expand $y(x)$ in terms of Fourier series.
- (5) If we look function to be period of 4, expand $y(x)$ and compare the one of the period 2.

2.



- (1) Expand $f_1(x)$ into Fourier series.
- (2) Expand $f_2(x)$ into Fourier series.

(3) $\sum_{n=1}^{\infty} \frac{1}{n^2}$

(4) $\sum_{n=1}^{\infty} \frac{1}{n^4}$

(5) $\sum_{n=1}^{\infty} \frac{1}{n^6}$

(Hint: Parseval's theorem)