

Exercise 4

- (a) Use (5) to prove that if $\phi(x)$ is an odd function, its full Fourier series on $(-l, l)$ has only sine terms.
- (b) Also, if $\phi(x)$ is an even function, its full Fourier series on $(-l, l)$ has only cosine terms.
(*Hint:* Don't use the series directly. Use the formulas for the coefficients to show that every second coefficient vanishes.)