

# 1997 PAPER IV Q9

(a) Sketch the function  $y = x \sin x$  over the range  $0 \leq x \leq \pi$ .

(b) Outside this range,  $y(x)$  is to be extended to make a function with period  $2\pi$  so that it is either odd or even. Identify which of these will have the more rapidly converging Fourier series, and calculate the coefficients of the first three terms of this series.