You *MAY NOT* use your calculators.

A particle moves along the x-axis with position at time t given by $x(t) = e^{-t} \sin t$ for $0 \le t \le 2\pi$.

(a) Find the time t at which the particle is farthest to the left. Justify your answers.

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(b) Find the value of the constant A for which $x(t)$ satisfies the equation $Ax''(t) + x'(t) + x(t) = 0$.