Areas under Parametric Curves - Edexcel Past Exam Questions

1.

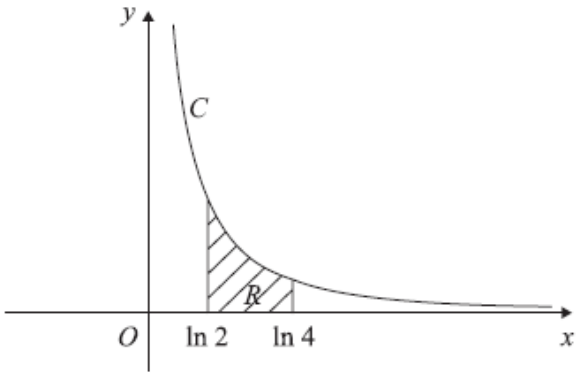

Figure 3

The curve C has parametric equations

$$x = \ln(t+2), \quad y = \frac{1}{(t+1)}, \quad t > -1.$$

The finite region R between the curve C and the x-axis, bounded by the lines with equations $x = \ln 2$ and $x = \ln 4$, is shown shaded in Figure 3.

(a) Show that the area of R is given by the integral

$$\int_0^2 \frac{1}{(t+1)(t+2)}\,\mathrm{d}t. \qquad \textbf{(4)}$$

(b) Hence find an exact value for this area. **(6)**

(c) Find a cartesian equation of the curve C, in the form $y = \mathrm{f}(x)$. **(4)**

(d) State the domain of values for x for this curve. **(1)**

Jan 08 Q7