



## STEP III, 2001 Q2

2 Show that  $\cosh^{-1} x = \ln(x + \sqrt{x^2 - 1})$ .

Show that the area of the region defined by the inequalities  $y^2 \geq x^2 - 8$  and  $x^2 \geq 25y^2 - 16$  is  $(72/5) \ln 2$ .



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