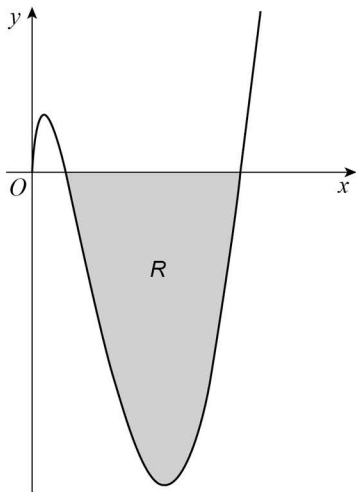


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The curve C with equation $y = (x^2 - 8x) \ln x$ is defined for $x > 0$ and is shown in the diagram below.



The shaded region, R , lies below the x -axis and is bounded by C and the x -axis.

Show that the area of R can be written as

$$p + q \ln 2$$

where p and q are rational numbers to be found.

[10 marks]