

5.

In this question you must show all stages of your working.

Solutions relying on calculator technology are not acceptable.

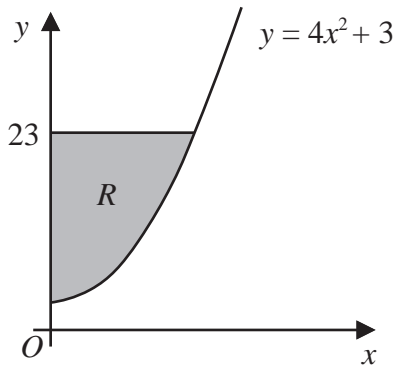


Figure 2

The finite region R , shown shaded in Figure 2, is bounded by the curve with equation $y = 4x^2 + 3$, the y -axis and the line with equation $y = 23$

Show that the exact area of R is $k\sqrt{5}$ where k is a rational constant to be found.

(5)