



The diagram shows part of the curve  $y = 3\sqrt{4x + 1} - 2x$ . The curve crosses the  $y$ -axis at  $A$  and the stationary point on the curve is  $M$ .

- (i) Obtain expressions for  $\frac{dy}{dx}$  and  $\int y dx$ . [5]

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

(ii) Find the coordinates of  $M$ . [3]

[3]

This image shows a single sheet of white paper with ten evenly spaced, horizontal dashed lines. The lines are black and extend across the full width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the paper.

(iii) Find, showing all necessary working, the area of the shaded region. [4]

[4]

[illegible]