

[5]

Blank lined paper for writing.

This image shows a full page of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting or typing. There are no margins, text, or other markings on the page.

7 The parametric equations of a curve are

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

Obtain a simplified expression for $\frac{dy}{dx}$ in terms of t . [5]

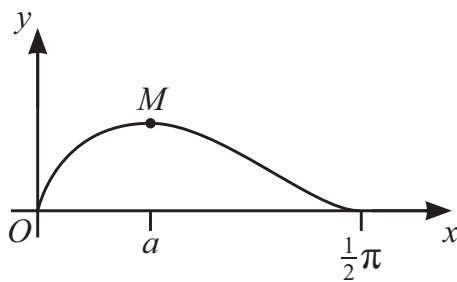
[illegible]

4 The parametric equations of a curve are

$$x = e^{\tan t}, \quad y = 3 \tan^2 t.$$

Find the equation of the tangent to the curve at the point $(e, 3)$. Give your answer in the form $y = mx + c$, where m and c are exact. [6]

[illegible]



The diagram shows the curve $y = \cos x \sqrt{\sin 2x}$ for $0 \leq x \leq \frac{1}{2}\pi$. The curve has a maximum point at M , where $x = a$.

- (a)** Find the exact value of a .

[6]

Handwriting practice lines (dotted lines) for the letter 'a'.

- (b)

Find the exact volume of the solid generated.

[5]

This image shows a full page of a worksheet designed for handwriting practice. It features approximately 20 evenly spaced, horizontal dotted lines across the entire width of the page. The background is plain white, providing a clear guide for letter height and placement. There are no margins, text, or other markings present.

Additional page

If you use the following page to complete the answer to any question, the question number must be clearly shown.

[illegible]

- [5]

This image shows a full page of white paper with horizontal dashed lines, typical of primary school writing paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Additional page

If you use the following page to complete the answer to any question, the question number must be clearly shown.

[illegible]