

7 The curve C has equation $y = \frac{x+2}{x^2+3x+1}$.

(a) Find the equations of the asymptotes of C .

[2]

(b) Show that C has no stationary points.

[3]

(c) Sketch C , stating the coordinates of the intersections with the axes.

[3]

.....

(d) Sketch the curve with equation $y = \left| \frac{x+2}{x^2+3x+1} \right|$.

[2]

Additional page

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

[illegible]

7

(a)

[3]

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 entire width of the page. There are no margins, text, or other markings present.

(b)

[3]

[illegible]

(c) Sketch C .

[3]

(d) Sketch the curve with equation $y = \frac{|x|^2 + |x| + 1}{|x| + 1}$.

[2]

(e) Find, in exact form, the set of values of x for which $\frac{|x| + |x| + 1}{|x| + 1} < 3$. [3]

[illegible]

Additional page

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

[illegible]

7 The curve C has equation $y = \frac{10x^2 - 11x - 10}{10x - 18}$.

(a) Find the equations of the asymptotes of C .

[3]

[illegible]

(b) Show that C has no stationary points.

[4]

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 is no handwriting or other markings on the paper.

- (c) Sketch C , stating the coordinates of the points of intersection with the axes. [3]

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- (d) Sketch the curve with equation $y = \left| \frac{10x^2 - 11x - 18}{10x - 18} \right|$. [2]

Additional page

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

[illegible]

7 The curve C has equation $y = \frac{2x - 3}{2x^2 - 7x - 4}$.

(a) Find the equations of the asymptotes of C .

[2]

(b) Find the coordinates of any stationary points on C .

[4]

(c) Sketch C , stating the coordinates of the intersections with the axes.

[3]

.....

(d) Sketch the curve with equation $y = \left| \frac{2x^2 - 5x}{2x^2 - 7x - 4} \right|$.

[1]

(e)

$$\left| \frac{2x^2 - 5x}{2x^2 - 7x - 4} \right| < \frac{1}{9}.$$

[5]

Additional page

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

[illegible]

6

(a)

[3]

[illegible]

(b)

[3]

[illegible]

- (c) Sketch C , stating the coordinates of any intersections with the axes. [3]

.....

- (d) Sketch the curve with equation $y = \left| \frac{x^2 + a}{x + a} \right|$. [1]

