

3

1

Solve the equation $|2x - 3| = |5x + 2|$.

[3]

(b) Hence solve the equation $|2 \sec \theta - 3| = |5 \sec \theta + 2|$ for $\pi < \theta < 2\pi$. Give your answer correct to 3 significant figures. [3]

[3]

4

Solve the equation $\cot \theta \tan(\theta + 45^\circ) = 7$ for $0^\circ < \theta < 90^\circ$.

[5]

2

[5]

[illegible]

7

[3]

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 practice. There are no margins, text, or other markings on the page.

(b)

$$\sin^2 2x + 4 \cos^2 x \cos 2x + 5 = k$$

has no real solutions.

[2]

[illegible]

Additional page

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

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- 7

[6]

This image shows a full page of white paper with horizontal dotted 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.

22 _____

(b)

$$12 \cos 2\phi \sin (2\phi + 30^\circ) = 5$$

for $0^\circ < \phi < 90^\circ$.

[5]

8

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

[illegible]