

(a) Verify the identity $(2x - 1)(4x^2 + 2x - 1) \equiv 8x^3 - 4x + 1$. [1]

[1]

(b) Prove the identity $\frac{\tan^2 \theta + 1}{\tan^2 \theta - 1} \equiv \frac{1}{1 - 2 \cos^2 \theta}$. [3]

[3]

(c) Using the results of (a) and (b), solve the equation

$$\frac{\tan^2 \theta + 1}{\tan^2 \theta - 1} = 4 \cos \theta,$$

for $0^\circ \leq \theta \leq 180^\circ$.

[5]

This image shows a full page of a worksheet designed for handwriting practice. It consists of approximately 20 horizontal rows. Each row is defined by two parallel dotted lines, creating a series of uniform gaps for writing. The lines are evenly spaced across the entire page, providing a guide for letter height and placement. There is no text or other markings on the page.