

3

[7]

[illegible]

3

$$u_{n+1} = \frac{6u_n + 5}{u_n + 2}.$$

(a)

[illegible]

(b)

$$u_{n+1}$$
$$> u_n \text{ for } n \geq 1.$$

[3]

[5]

5

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.

2

Prove by mathematical induction that $2025^n + 47^n - 2$ is divisible by 46 for all positive integers n . [6]