

(4 分)

(a) 求 a 和 n 的值。

(b) 求 x^3 的係數。

(7 分)

[illegible]

$$2 + \frac{1}{1 \times 4} + \frac{1}{4 \times 7} + \frac{1}{7 \times 10} + \dots + \frac{1}{(3n-2)(3n+1)} = \frac{7n+2}{3n+1}。$$

This image shows a full page of white paper with horizontal dashed lines, typical of primary-ruled notebook 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.

- (7 分)

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

This image shows a full page of a worksheet designed for handwriting practice. It consists of numerous horizontal dashed lines spaced evenly across the page, providing a guide for letter height and placement. The background is plain white, and there are no other markings or text present.

7. (a) 證明 $(1+ax-2ax^2)^n = 1+anx + \frac{na}{2}[a(n-1)-4]x^2 + \frac{n(n-1)a^2}{6}[a(n-2)-12]x^3 + \dots$ 。
- (b) 如果 x^3 的係數在 $(1-x+2x^2)^n$ 和 $(1+2x-4x^2)^n$ 的展式中是相同的，
- (i) 已知 $n > 1$ ，求 n 的值；
- (ii) 求在這兩條展式中 x^2 的係數的比。

(9 分)

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