Calculus 2 Workbook

Alternating series test

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ALTERNATING SERIES TEST

■ 1. Use the alternating series test to say whether the series converges or diverges.

$$\sum_{n=1}^{\infty}(-1)^{n-1}\left(\frac{3}{5n+6}\right)$$

■ 2. Use the alternating series test to say whether the series converges or diverges.

$$\sum_{n=1}^{\infty}(-1)^{n-1}n\left(\frac{2}{7}\right)^{n}$$

■ 3. Use the alternating series test to say whether the series converges or diverges.

$$\sum_{n=3}^{\infty}(-1)^{n+1}\frac{n^3}{n!}$$

ALTERNATING SERIES ESTIMATION THEOREM

1. Approximate the sum of the alternating series to three decimal places, using the first 5 terms. Then find the remainder of the approximation, to the nearest six decimal places.

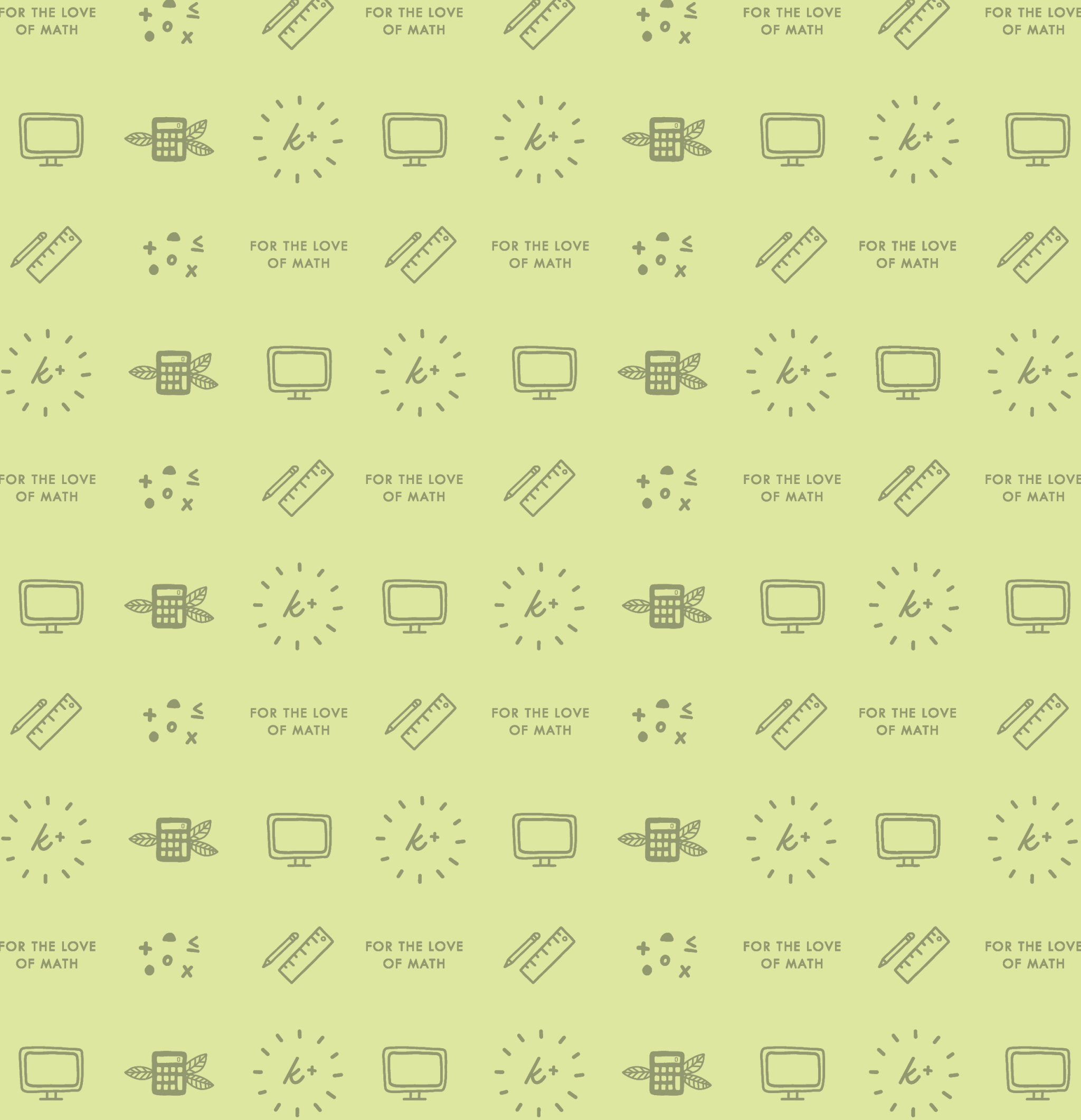
$$\sum_{n=1}^{\infty} \frac{(-1)^{n-1} n^3}{12^n}$$

2. Approximate the sum of the alternating series to three decimal places, using the first 12 terms. Then find the remainder of the approximation, to the nearest six decimal places.

$$\sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{3n^3}$$

3. Approximate the sum of the alternating series to three decimal places, using the first 10 terms. Then find the remainder of the approximation.

$$\sum_{n=1}^{\infty} \frac{(-1)^{n-1} \cdot 3}{12n^3 + 4n^2}$$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