

3 次の数列 $a_1, a_2, \dots, a_n, \dots$ の収束, 発散を調べ, 解答欄の表に番号を記入せよ. またその理由を述べよ.

(1) $a_n = \frac{1}{n} \sin n$

(2) $a_n = n^2 \sin \frac{1}{n}$

(3) $a_n = n \cos \frac{n\pi}{4}$

(4) $a_n = \sqrt{2n} - n$

(5) $a_n = \frac{1}{n^2} + \frac{1}{(n+1)^2} + \dots + \frac{1}{(2n)^2}$

(6) $a_n = \frac{1}{n} + \frac{1}{n+1} + \dots + \frac{1}{2n}$