

次の和を求めよ。

$$(1) \sum_{k=1}^n \frac{1}{(3k-2)(3k+1)}$$

$$(3) \sum_{k=1}^n \frac{2k+1}{k^2(k+1)^2}$$

$$(2) \sum_{k=1}^n \frac{1}{\sqrt{k+2} + \sqrt{k+3}}$$

$$(4) \sum_{k=1}^n k \cdot 5^{k-1}$$