線形代数 ~~第7回小テスト~~ 解答

1

(1) $\det(A) = -3,\ \det(B) = 4,\ \det(C) = -12$

(2) $AB = C, \quad \det(A) \times \det(B) = -12$[*1]

2

(1) $\det \begin{pmatrix} 2 & -2 & 1 & 3 \\ 1 & -1 & 3 & 2 \\ -3 & 1 & 4 & 1 \\ 2 & 1 & 4 & -2 \end{pmatrix} = 10$

(2) $\det \begin{pmatrix} 1 & 1 & 1 & 1+\frac{1}{a} \\ 1 & 1 & 1+\frac{1}{b} & 1 \\ 1 & 1+\frac{1}{c} & 1 & 1 \\ 1+\frac{1}{d} & 1 & 1 & 1 \end{pmatrix} = \dfrac{1+a+b+c+d}{abcd}$

[*1] 一般的に，$\det(AB) = \det(A) \times \det(B)$ が成り立つ．

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