

2 14

1. $2n$ D a $D=$
 A 0 B a^2 C a^2 D na^2
2. $R(A)=R(B)=r$
 A $A \ B$
 B $A \ B$
 C $A \ B$
 D $A \ B \ r-1$
3. $A \ B$
 A $A \ B$ B AB C $2A^2 \ 3A \ 4E$ D A^*+B^*
4. A A 2 3 1 B
 A A^* 2 3 1 B^*
 B A^* 2 -3 1 B^*
 C A^* 1 3 2 B^*
 D A^* 1 -3 2 B^*
5. $AB \ E \ |A| \ 0$
 B $A \ B \ C \ n \ ABC \ E \ A^{-1}C^{-1}B^{-1} \ E$
 C $A \ B \ n \ AB$
 D $A \ 0 \ R(A) \ 1$

6. A^n $n=2$ $(A^{-1})^*$

$A = |A|A^{-1}$ $B = |A|A$ $C = |A^{-1}|A^{-1}$ $D = |A^{-1}|A$

7. A

$A = A$ $B = A$ A^*

$C = A = E$ $D = B = AB = E = AB = E$

$3 \quad 18$

1. n $\begin{vmatrix} a & b & 0 & 0 & 0 \\ 0 & a & b & 0 & 0 \\ 0 & 0 & 0 & a & b \\ b & 0 & 0 & 0 & a \end{vmatrix}$ _____.

2. $(1, 2, 3)^T$ $(1, \frac{1}{2}, \frac{1}{2})^T$ A^T A^n _____.

3. $A = \begin{pmatrix} 0 & E_{n-1} \\ 1 & 0^T \end{pmatrix}$ $\det A$ _____.

4. $A = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 3 \end{pmatrix}$ $B = \begin{pmatrix} 1 & 1 & 0 \\ 1 & 2 & 2 \\ 0 & 1 & 3 \end{pmatrix}$ $C = AB^{-1}$ C^{-1} 3 2

_____.

5. $A = \begin{pmatrix} 5 & 2 & 0 & 0 \\ 2 & 1 & 0 & 0 \\ 0 & 0 & 1 & 2 \\ 0 & 0 & 1 & 3 \end{pmatrix}$ A^{-1} _____.

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1. $A = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$ $B = P^{-1}AP$ $B^{2010} = 2A^2$

2.

$$1 \quad D \quad \begin{vmatrix} 1 & 2 & 3 & 4 & 5 \\ 2 & 3 & 4 & 5 & 1 \\ 3 & 4 & 5 & 1 & 2 \\ 4 & 5 & 1 & 2 & 3 \\ 5 & 1 & 2 & 3 & 4 \end{vmatrix}$$

$$2 \quad D \quad \begin{vmatrix} 1 & 1 & 1 & 1 \\ 1 & 2 & 3 & 4 \\ 1 & 4 & 9 & 16 \\ 1 & 8 & 27 & 64 \end{vmatrix}$$

$$3. \quad A \ B \ C \ n \qquad |A| \ 1 \ |B| \ 2 \qquad \left|A^{-1}B^T(CB^{-1}-2E)^T-[(C^{-1})^T A]^{-1}\right|$$

$$4. \quad A \begin{pmatrix} 0 & 2 & 1 \\ 2 & 1 & 3 \\ 3 & 2 & -5 \end{pmatrix} \ B \begin{pmatrix} 1 & 2 & 3/2 \\ 2 & 1 & 3 \end{pmatrix} \quad X \quad X(3E+A)=2B.$$

5.

A

1	2	3	4
0	1	2	b
2	6	a	20
5	12	$3a$	$5\ 44\ 2b$

$R(A)$

1.

A

B

6

18

$m\ n$

$A\sim B$

$R\ A\ R\ B\ .$

5

2.

A

a_{11}

a_{12}

⋮

a_{1n}

a_{21}

a_{22}

⋮

a_{2n}

M

M

⋮

M

a_{n1}

a_{n2}

⋮

a_{nn}

n

C

A^{-1}

$\frac{1}{C}$

3.

n

A

$A^2 - 2A - 3E = O$

$R(A - 2E) = R(A - 3E) = n$

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