

matrices:  $2 \times 2$ , Identity matrix

$$2. AB = I \quad B = \begin{pmatrix} 5 & -2 \\ 7 & -3 \end{pmatrix} \quad I = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$

$$AB B^{-1} = I B^{-1} \quad B B^{-1} = I$$

$$AI = B^{-1}$$

$$A = B^{-1}$$

$$B = \begin{pmatrix} 5 & -2 \\ 7 & -3 \end{pmatrix}$$

$$\det B = -15 - (-14)$$

$$\det B = -1$$

$$B^{-1} = \frac{1}{-1} \begin{pmatrix} -3 & 2 \\ -7 & 5 \end{pmatrix}$$

$$B^{-1} = A = \begin{pmatrix} 3 & -2 \\ 7 & -5 \end{pmatrix}$$

$$\text{check} \quad \begin{pmatrix} 3 & -2 \\ 7 & -5 \end{pmatrix} \begin{pmatrix} 5 & -2 \\ 7 & -3 \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$



matrices:  $2 \times 2$ , Identity matrix

Q5

$$A \begin{pmatrix} 5 & -2 \\ 3 & -1 \end{pmatrix} = \begin{pmatrix} 1 & -3 \\ 2 & 4 \end{pmatrix}$$

$$A = \begin{pmatrix} 1 & -3 \\ 2 & 4 \end{pmatrix} \begin{pmatrix} 5 & -2 \\ 3 & -1 \end{pmatrix}^{-1}$$

$$\begin{pmatrix} 5 & -2 \\ 3 & -1 \end{pmatrix}^{-1} = \frac{1}{(-5+6)} \begin{pmatrix} -1 & 2 \\ -3 & 5 \end{pmatrix}$$

$$= \frac{1}{1} \begin{pmatrix} -1 & 2 \\ -3 & 5 \end{pmatrix}$$

$$A = \begin{pmatrix} 1 & -3 \\ 2 & 4 \end{pmatrix} \begin{pmatrix} -1 & 2 \\ -3 & 5 \end{pmatrix}$$

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$$A = \begin{pmatrix} 8 & -13 \\ -14 & 24 \end{pmatrix}$$

$$\begin{pmatrix} 8 & -13 \\ -14 & 24 \end{pmatrix} \begin{pmatrix} 5 & -2 \\ 3 & -1 \end{pmatrix} = \begin{pmatrix} 1 & -3 \\ 2 & 4 \end{pmatrix}$$



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