EECS 16B

Designing Information Devices and Systems II

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Announcements

- Midterm #1
  - Redo is due Wed 3/13 @ 11:59pm
- Lab
  - Midterm lab report is due Wed 3/6 @ 11:59pm
  - Buffer lab this week and next

Today

- Review
  - trace & determinant / finding eigenvalues
- Matrix exponentials (e^{At})
- The "order" of a system / converting to and from state space form
- Forced Response: Solving $\dot{x} = Ax + Bu$

$$A = \begin{bmatrix} 2 & 4 \\ 3 & -2 \end{bmatrix}$$

What are the eigenvalues of **A**?

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Can use the characteristic polynomial, or…

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Can use the <u>characteristic polynomial</u>, or… note that trace(A) = 0 and det(A) = -16

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What are the eigenvalues of **A**?

Can use the characteristic polynomial, or… note that trace(**A**) = 0 and det(**A**) = -16

=> eigenvalues are +4 and -4

$$A = \begin{bmatrix} 2 & 0 \\ 3 & -2 \end{bmatrix}$$

What are the eigenvalues of **A**?