YOUR BACKGROUND

Please, estimate your level of knowledge in the following topics:

Linear algebra

- **Inner products**

  Have never seen this before ☐   Beginner ☐   Advanced ☐

- **Orthonormal bases**

  Have never seen this before ☐   Beginner ☐   Advanced ☐

- **Cauchy-Schwarz inequality**

  Have never seen this before ☐   Beginner ☐   Advanced ☐

- **Operator norm**

  Have never seen this before ☐   Beginner ☐   Advanced ☐

- **Selfadjoint (aka Hermitian) matrices**

  Have never seen this before ☐   Beginner ☐   Advanced ☐

- **Spectral theorem of selfadjoint matrices**

  Have never seen this before ☐   Beginner ☐   Advanced ☐

- **Positive semidefinite matrices**

  Have never seen this before ☐   Beginner ☐   Advanced ☐

- **Singular value decomposition**

  Have never seen this before ☐   Beginner ☐   Advanced ☐

- **Moore-Penrose pseudo-inverse**

  Have never seen this before ☐   Beginner ☐   Advanced ☐

- **Functions of normal matrices, e.g., $\sin(X)$ for a normal matrix X**

  Have never seen this before ☐   Beginner ☐   Advanced ☐

- **Tensor products (abstract)**

  Have never seen this before ☐   Beginner ☐   Advanced ☐

- **Tensor products (concrete), i.e., compute $A \otimes B$ for matrices A and B**

  Have never seen this before ☐   Beginner ☐   Advanced ☐

PROBABILITY

- **Discrete probability distributions**

  Have never seen this before □   Beginner □   Advanced □

- **Expectation values and variances of probability distributions**

  Have never seen this before □   Beginner □   Advanced □

- **Independence of random variables**

  Have never seen this before □   Beginner □   Advanced □

- **Bayes' theorem**

  Have never seen this before □   Beginner □   Advanced □

- **Chebychev's inequality**

  Have never seen this before □   Beginner □   Advanced □

- **Weak law of large numbers**

  Have never seen this before □   Beginner □   Advanced □

- **Jensen's inequality**

  Have never seen this before □   Beginner □   Advanced □

- **Shannon's entropy**

  Have never seen this before □   Beginner □   Advanced □

CONVEXITY

- **The definition of convex functions**

  Have never seen this before □   Beginner □   Advanced □

- **The definition of convex sets**

  Have never seen this before □   Beginner □   Advanced □

- **Extreme points of convex sets**

  Have never seen this before □   Beginner □   Advanced □

- **Hyperplane separation theorem or Hahn-Banach theorem**

  Have never seen this before □   Beginner □   Advanced □

- **Caratheodory's theorem**

  Have never seen this before □   Beginner □   Advanced □

PHYSICS

- **Newtonian mechanincs**

  Have never seen this before □   Beginner □   Advanced □

- **Quantum mechanics**

  Have never seen this before □   Beginner □   Advanced □

- **Open quantum systems**

  Have never seen this before □   Beginner □   Advanced □

- **Bra-Ket notation (also known as Dirac notation)**

  Have never seen this before □   Beginner □   Advanced □

- **Schrödinger's equation**

    Have never seen this before ☐   Beginner ☐   Advanced ☐

- **Quantum teleportation**

    Have never seen this before ☐   Beginner ☐   Advanced ☐

- **Shor's algorithm in quantum computing**

    Have never seen this before ☐   Beginner ☐   Advanced ☐

OTHER

- **Brouwer's fixed point theorem**

    Have never seen this before ☐   Beginner ☐   Advanced ☐

- **The Haar measure of a compact group**

    Have never seen this before ☐   Beginner ☐   Advanced ☐

- **Representation theory**

    Have never seen this before ☐   Beginner ☐   Advanced ☐

- **Lie group theory**

    Have never seen this before ☐   Beginner ☐   Advanced ☐