Recruiting Timelines

* Generally starts in July / August
* Basic Format:
  + HR Review / Interview (not that common tho behavioral matter v little)
  + Mental Math Assessment (to wipe ~60% of unqualified interviewers)
  + Coding Assessment (if coding is required for the job)
  + Phone interviews (Several) (brain teaser/probability/game theory questions)
  + Final Round Interview
* Guidelines
  + Interviews are **designed** to see how you act under pressure and how you think quantitatively under pressure
  + Communication is important (similar to traditional tech interviews) when discussing the logical reasoning of your answer
  + It's a numbers game.
    - Assume that around 1% of applicants get offers but around 50% are super unqualified. Assuming you prepare enough that you believe you are somewhere on the edge of being talented enough to be quant -> you will reasonably believe you have a 2% shot each time. Now given that you apply for 30 positions and each result is independent of the other. The probability that you get alteast one offer is such:
      * P(atleast one offer) = 1 - P(no offer) where p(no offer) = (failure rate)^applications or (1 - 0.02)^30. Thus P(atleast one offer) = 1 - (0.98)^30 = 45%. Let’s say you believe you are atleast the top 25% of applicants. P (atleast one offer) = 1 - (0.96)^30 = 70%.
    - Your goal is maximize the probability of getting an offer through preparing for interviews.

(Things to know not necessarily in this order)

1) Mental Math

1. Get the fundamentals down:
   1. <https://braintrain.netlify.app/math>
   2. Read “Secrets of Mental Math” to get the track - play until average 60-70
      1. Tip: record all playing data to chart progress
2. Prep 8-minute 80 question math
   1. Important for Akuna, Optiver, Flow (and useful for interview process)
   2. Use:
      1. <https://graduatetrader.com/course/trading-maths-test/>
      2. <https://rfqjobs.com/practice/math/optiver-test/>

2) Other Random math

1. Square Roots
   1. Practice square root estimation (know that root 10 is about 3.162)
2. Sequences
   1. Numbers:
      1. <https://graduatetrader.com/course/sequence-test-trading-interview/>
   2. Letters:
      1. <https://web.archive.org/web/20160325173249/http://tradertest.org/>

3) Probability / Combinatorics / Brainteasers

1. Concepts to know ish
   1. Probability concepts to learn be somewhat familiar
      1. Law of Total Probability
      2. Conditional Probability
      3. Bayesian Statistics
      4. Expected Value
      5. Variance
      6. Basic Set Theory
      7. Bernouli / Binomial Distribution
      8. Geometric Distribution
   2. Combinatorics
      1. Combinations, permutations, factorial
      2. Multiplication vs. Addition Rule
      3. Symmetry applications
      4. Recurrence relations (ish)
   3. Stochastic Processes
      1. Basic probability markov chains (makes questions wayyy easier)
      2. Maybe geometric random walks
   4. Cool Tricks to Learn
      1. Linearity of Expectation
      2. Stars & Bars
      3. Symmetry in Probability
      4. Principle of Exclusion-Inclusion
2. Books to practice on
   1. Practical Guide to Quantitative Finance
   2. Quant Interview Guide by Mark Joshi
   3. Heard on the Street
   4. 50 Challenging Questions in Probability
   5. <https://www.quantquestions.com/questions/explore/>

4) Options Theory (not necessary at all but if curious)

* Take Akuna’s Options 101 Course

5) Market-Making / Game Theory (good to know but not necessary)

* <https://www.janestreet.com/static/pdfs/trading-interview.pdf?utm_source=web&utm_medium=pdf&utm_campaign=probability_markets_guide>
* <https://www.optiver.com/recruitment-blog/post/optiver-launches-the-brain-circuit-quiz/>
* <https://www.tradinginterview.com/quizzes/example-market-making-simulator/>
* <https://math.stackexchange.com/questions/3345442/market-making-card-game-strategy>
* <https://www.reddit.com/r/FinancialCareers/comments/lk2rql/how_do_you_approach_market_making_games_in_prop/>
* <https://www.reddit.com/r/algotrading/comments/avel8v/market_making_interview_question_hft_firm_correct/>
* <https://medium.datadriveninvestor.com/beginners-guide-to-market-making-with-examples-660977ba440a>
* Just read that -> learn how market-making works . can be useful for late rounds