

Quantitative Trader interview questions

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What to expect

Quantitative trader interviews test whether you can reason under uncertainty, write code that survives contact with live markets, and stay calm when a model misbehaves. Expect the process to be technical, but not only technical: desks also want evidence that you understand risk limits, transaction costs and the difference between a backtest and a trading business.

- **Probability and statistics:** Questions that probe how you reason about edge, variance and sample size, often without any market context at all.
- **Technical and coding:** Backtesting design, data handling, and sometimes a live exercise or take-home task in Python or C++.
- **Scenario and risk judgement:** Hypothetical situations on a live book, testing whether you escalate, pause or double down when something breaks.
- **Behavioural:** Past examples of a strategy that failed, a disagreement with a developer or risk, or a decision made under time pressure.
- **Market and regulatory awareness:** Questions on Australian market structure, ASIC's market integrity rules and how they shape algorithmic trading.
- **Motivation and fit:** Why a trading desk rather than a research, analytics or engineering role, and how you handle the hours and the scrutiny.

Most processes start with a recruiter or HR screen covering background and motivation, then move to one or two technical rounds covering probability, statistics and coding, often with a take-home or live coding exercise. The later rounds are usually with the desk itself: a trader or portfolio manager walks you through a case or a past strategy, then a final conversation with the desk head or hiring manager. Some firms add a short market awareness or risk discussion. Feedback is usually quick, and offers often come with a clear picture of the seat, the asset class and the risk limits you would inherit.

1. Walk me through how you would decide whether a trading signal is real or just noise in the data.

Why they ask

This is the core of the job. The interviewer wants to see whether you separate a genuine edge from overfitting, and whether you think about costs, capacity and regime change rather than just a strong backtest chart.

How to structure your answer

Define the hypothesis first, then the test, then the falsification. State the sample and the assumptions, describe how you would split the data, name the specific ways the result could be an artefact, and finish with the conditions under which you would stop trading it.

Example answer

"I would start by writing down what economic or behavioural reason there might be for the signal, because a pattern with no story is usually a artefact. Then I would test it on a long sample with a proper out of sample split and walk forward validation, using point in time data so I am not reading prices that were not available when the signal fired. Next I would add realistic costs, spreads and borrow, and check how sensitive the result is to small parameter changes. If a strategy only works when I tune one parameter to three decimal places, I treat that as noise. Finally I would look at capacity: how much size the signal can carry before the edge disappears. If it survives all of that, I would run it small, live, with a hard loss limit, and let real fills tell me the rest."

2. How would you backtest a simple momentum strategy on minute bars, and what could make your backtest lie to you?

Why they ask

The desk wants to know you can actually build the thing, not just talk about it, and that you have been burned by the classic traps before.

How to structure your answer

Walk through the pipeline in order, then list the failure modes. A process answer should be sequential and concrete, with the pitfalls grouped by data, execution and methodology.

Example answer

"I would load the minute bars into a point in time store, align timestamps to the exchange clock, and compute the signal on data available at the decision time, so nothing from the current or future bar leaks into the calculation. Then I would generate target positions, lag them by one bar to allow for decision and transmission, and apply fills at the next available price rather than the close of the signal bar. On costs, I would model spread, commission and a slippage estimate that scales with order size and volatility. The ways it lies are predictable: survivorship bias if delisted names are missing, look ahead bias from revised or restated data, ignoring the auction and the overnight gap, and assuming fills at prices that were never available. I would also check that the backtest degrades gracefully when I add costs, because a strategy that only works on zero cost fills is a research project, not a trade."

3. Your model is down three standard deviations and you are the only trader on the desk. What do you do in the next hour?

Why they ask

This tests judgement under pressure. The wrong answers are freezing and doubling down without information. The right answer shows a sequence of actions with escalation built in.

How to structure your answer

Immediate containment, then information, then decision, then escalation. Be explicit about what you would do first, what you would check, and who you would tell.

Example answer

"First I would check that the loss is real and not a pricing or data error, because a stale feed looks exactly like a drawdown from the wrong side. If the marks are genuine, I would confirm the position is inside its limits and reduce size if it is not, since the risk framework is not something I renegotiate mid session. Then I would work out whether the move is idiosyncratic to my book or market wide, by comparing to the sector, the index and correlated names. If the whole market has moved, the model may simply be doing what it was designed to do and I would let it run with the stop where it is. If my book is moving alone, that points to a model or data problem and I would consider flattening until I understand it. Either way I would call the desk head and risk within the hour, because a three sigma event is not something to report at the end of the day."

4. Tell me about a time a strategy you built lost money once it went live.

Why they ask

Every desk has this story. The interviewer is testing honesty, whether you can diagnose a failure calmly, and whether you changed a process as a result.

How to structure your answer

Use STAR: situation, task, action, result, then a short reflection on what you changed afterwards.

Example answer

"I had a short term mean reversion strategy on ASX listed equities that performed well in backtest over several years. In its first month live it lost money in a way the backtest never showed, and the pattern was clustered in the first thirty minutes after the open. My task was to work out whether the edge was gone or whether the model was mis specified for the open. I pulled the fills and compared

them with the backtest assumptions, and the issue was that my simulated fills assumed mid prices with a fixed spread, while the real open had wide spreads and thin depth. I cut the position size in half while I investigated, then rebuilt the entry logic to avoid the opening auction window and to use a liquidity filter based on real depth. The strategy returned to positive territory over the following months at a lower size. The lasting change was that I now build execution assumptions from our own fill data rather than from a spreadsheet, and I run new strategies at a fraction of target size until I have real fills to compare against."

5. How would you explain a drawdown to an investor or portfolio manager who does not have a quantitative background?

Why they ask

Quantitative traders on a desk spend a large part of their time explaining performance to people who do not want to read your code. This question tests whether you can be clear without being condescending, and whether you are straight about uncertainty.

How to structure your answer

Audience first, then the plain explanation, then the evidence, then the decision. Keep jargon out and be explicit about what you do not yet know.

Example answer

"I would start with the number they actually care about: how far the strategy is down, over what period, and how that compares with the range we said was normal when we launched it. Then I would explain the driver in plain terms, for example that the strategy buys short term overshoots and the market has stopped overshooting in the sectors we trade, so the same signal is firing but the payoff has shrunk. I would show the rolling performance and the drawdown against the historical distribution rather than a single bad day, because one day tells you nothing. I would be clear about what I do not know yet, and set out the two or three things I am checking, the size we are running at in the meantime, and the level at which I would recommend reducing or stopping the strategy. The goal is that they leave the conversation able to make a decision, not impressed by the statistics."

6. What do you understand about ASIC's market integrity rules and how they affect algorithmic trading?

Why they ask

Australian desks operate inside a specific regulatory framework, and the interviewer wants to know you take that seriously rather than treating compliance as someone else's problem.

How to structure your answer

Answer factually but honestly about the limits of your knowledge, then connect the rules to your day to day behaviour. Do not bluff about specific rule numbers.

Example answer

"My working understanding is that ASIC's market integrity rules set the conduct framework for trading on Australian venues, covering things like orderly markets, pre trade risk controls, and the expectations on firms using automated order processing. In practice that shows up in the desk controls I use every day: order size and price limits, kill switches, throttle limits on message rates, and the requirement that algorithms be tested before they go near the live market. There is also a supervision expectation, in that someone has to be able to monitor the algorithm and intervene, which is why I do not leave strategies running unattended. I am not a compliance specialist and I would not pretend to know every rule number, but I know where the boundaries sit, I know to escalate when something looks like it might breach them, and I would expect to complete the firm's required training on Australian market conduct early in the role."