

Answer key: When a positive estimate is still not permission

For worksheet QCE-FND-F02-001-WS, draft 0.3.1. Use after your attempt. All values are exact before rounding to two decimals.

Task 1. The four cases

Case	p	c	Inputs	1 – p	pG	(1 – p)L	EV	Reason code and decision
Baseline	0.56	1.80	Fresh	0.44	6.72	4.40	+0.52	EVIDENCE_INCOMPLETE Arithmetic positive; evidence incomplete
Higher costs	0.56	2.60	Fresh	0.44	6.72	4.40	–0.28	COST_EXCEEDS_ESTIMATED_EDGE Reject under the stated cost scenario
Lower probability assumption	0.49	1.80	Fresh	0.51	5.88	5.10	–1.02	COST_EXCEEDS_ESTIMATED_EDGE Reject under this sensitivity scenario
Stale inputs	0.56	1.80	Stale	0.44	6.72	4.40	+0.52	INPUT_STALE Refuse new risk; the number does not override freshness

Worked baseline

1. Probability of the unfavourable outcome	$1 - 0.56 = 0.44$
2. Probability-weighted gain	$0.56 \times 12 = 6.72$
3. Probability-weighted loss	$0.44 \times 10 = 4.40$
4. Estimated gross edge	$6.72 - 4.40 = 2.32$
5. Subtract total round-trip cost	$2.32 - 1.80 = +0.52$

Baseline. The arithmetic check passes, but nothing documents how 0.56 was produced or how much it could move. EVIDENCE_INCOMPLETE.

Higher costs. Only the cost changed. 2.60 exceeds the 2.32 gross edge, so EV is –0.28. COST_EXCEEDS_ESTIMATED_EDGE.

Lower probability assumption. –1.02. The 0.49 is a sensitivity input chosen to test fragility, not a computed confidence bound. COST_EXCEEDS_ESTIMATED_EDGE.

Stale inputs. The arithmetic is unchanged at +0.52, but freshness decides: refuse new risk. INPUT_STALE.

Task 2. Break-even probability

With $c = 1.80$: $(10 + 1.80) \div (12 + 10) = 11.80 \div 22 = 53.64\%$.

With $c = 2.60$: $(10 + 2.60) \div (12 + 10) = 12.60 \div 22 = 57.27\%$.

$p = 0.56$ is $56.00\% - 53.64\% = 2.36$ percentage points above the first break-even. A small change in the estimate reverses the sign.

Task 3. Missing evidence, model answer

- A documented method and data for the 0.56 estimate, with its uncertainty.
- A cost model tied to the intended size and market conditions.
- Inputs shown to be current at decision time, and evidence that the result survives reasonable changes in assumptions.
- Limits on how large the new exposure may be.

Not evidence: a profitable-looking chart, or repeating the same arithmetic.

Task 4. An existing position, model answer

Refuse new risk. Reconcile the actual position from an authoritative record, then follow the separately defined risk-reduction process. If the position is unknown or records disagree, escalate to an operator under the written failure plan. Stale inputs do not justify a blind, unverified market exit, and an entry rule must never block a defined risk-reduction process.

Task 5. Reference paragraph

A positive estimated value is a probability-weighted average under a model, computed from inputs that are themselves estimates. It does not predict the next outcome. In this two-outcome model with the same fixed round-trip cost either way, each baseline trade ends at +10.20 or –11.80 units after costs; real trades can have many outcomes and variable costs. If the 0.56 estimate is wrong by as little as 0.03 the value turns negative. Guaranteed profit would require a known outcome; this calculation only describes an estimate under stated assumptions, so it is one input to a decision, not permission.

Check that your answer calls p an estimate, distinguishes average from outcome, includes costs and denies that the number grants permission.

Task 6. Completed baseline dossier

1. Hypothesis	A fictional candidate has an estimated 0.56 probability of a 12-unit gross gain against a 10-unit gross loss.
2. Assumptions	Round-trip cost 1.80 units; inputs fresh; the 0.56 estimate has no documented method or uncertainty.
3. EV calculation	$0.56 \times 12 - 0.44 \times 10 - 1.80 = +0.52$ estimated units. Break-even 53.64%.
4. Rejection reason	EVIDENCE_INCOMPLETE. Positive arithmetic, but a 0.03 lower estimate reverses the sign and reliability is unknown.
5. Next experiment	Document the estimation method, measure its variation across separate periods and model cost by trade size.

Common mistakes

- Forgetting the cost, or counting it once per side instead of once per round trip.
- Treating EV of exactly zero as passing. The check requires a value strictly above zero.
- Reading 0.49 as a confidence bound rather than a sensitivity input.
- Capping a break-even above 100% instead of reporting that no estimate can break even.
- Letting stale inputs trigger a blind exit, or letting an entry rule block risk reduction.

Scoring your attempt

- Tasks 1 and 2 have exact answers. Compare each value to two decimals and each reason code exactly.
- Tasks 3 to 6 are judged against the model answers. Different wording is fine if the same points are made.
- Concluding that the baseline must not receive permission is the correct outcome, not a failed attempt.

Edition and status

Lesson	QCE-FND-F02-001, draft 0.3.1, 4 October 2026
Worksheet and key	QCE-FND-F02-001-WS and QCE-FND-F02-001-AK, draft 0.3.1
State	Drafted, not released. Technical review and learner testing have not yet been performed.
Arithmetic	Generated from the same fixture as the lesson and calculator, and checked by automated tests.
Data	Synthetic, created for this lesson. Fictional units, no market data.
Corrections	Draft 0.3.1, 4 October 2026: wording on single outcomes now states the two-outcome, fixed-cost model; header emblem updated; all numbers unchanged. Draft 0.3, 3 October 2026: first issue.