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FORMULA SHEET

CPA AUD

Auditing & Attestation · Core section

44 formulas 4 subject areas

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HOW TO USE THIS SHEET

AUD has fewer formulas than any other section and is failed more often than candidates expect. The reason: it is not a computation exam, it is a JUDGEMENT exam, and it is written in a very precise vocabulary.

Words carry legal weight here. "Probable" is not "reasonably possible". "Material" is not "pervasive". "Should" is not "may". The examiners choose these words deliberately, and a candidate who reads them loosely will get the question wrong while understanding the concept perfectly.

So read this sheet for the DISTINCTIONS, not the arithmetic. The audit risk model is the only real formula in AUD, and it takes ten minutes to learn. Everything else is knowing exactly what each term means and what each situation requires.

The ‣ notes flag the precise boundary the examiners test — the point where one answer stops being right and the next one starts.

ETHICS, PROFESSIONAL RESPONSIBILITIES & GENERAL PRINCIPLES · 7 formulas

Independence and quality control. Roughly 15–25% of the exam, and the least forgiving of vagueness.

Independence — financial interest threshold

```
DIRECT financial interest of ANY amount → independence IMPAIRED
INDIRECT financial interest → impaired only if MATERIAL to the covered member
```

Where: Covered member = engagement team, firm, or network firm.

‣ *Direct has NO materiality threshold. Owning one share of an audit client impairs independence. Indirect (a mutual fund holding the client) only matters if material. That asymmetry is the most-tested independence fact there is.*

Covered member categories

```
(1) The engagement team (2) those who can influence the engagement (3) partners in the lead partner's office (4) the firm itself (5) partners or managers providing 10+ hours of nonattest services to the client
```

Where: AICPA Code.

‣ *Note category 3: a partner in the same OFFICE who never touched the engagement is still a covered member. Geography matters.*

AICPA Threats and Safeguards framework

```
Seven threats: Adverse Interest, Advocacy, Familiarity, Management Participation, Self-Interest, Self-Review, Undue Influence
Safeguards: profession/legislation, client, firm, remove the individual, refuse the engagement
```

Where: If threats outweigh safeguards → not independent.

‣ *It is a conceptual framework, not a checklist — you apply it when no explicit rule covers the situation. Management participation and self-review are the two that most often cannot be safeguarded at all.*

Permitted vs prohibited nonattest services

```
Permitted with safeguards (non-issuers): bookkeeping, payroll, tax compliance, advisory
PROHIBITED for issuers (SOX §201): bookkeeping, management functions, financial information system design/implementation, internal audit outsourcing, broker-dealer services, legal services, expert witness
```

Where: The issuer rules are far stricter.

‣ *The dividing line is SELF-REVIEW: you may not audit your own work. Bookkeeping for a non-issuer is fine with safeguards; for an issuer it is flatly banned.*

Engagement letter — required content

```
(1) Objectives and scope (2) auditor and management responsibilities (3) inherent limitations (4) the applicable reporting framework (5) form and content of the report (6) laws referenced (7) fees and billing (8) period covered
```

Where: Signed by both parties.

▸ *The inherent-limitations clause matters: it states that material misstatements MAY GO UNDETECTED even in a properly conducted audit. An audit is reasonable assurance, never absolute.*

Quality control elements (SQCS 8)

```
Human resources, Engagement performance, Monitoring, Acceptance and continuance of clients, Management responsibilities (leadership/tone), Ethics and independence
```

Where: Mnemonic: HELP ME.

▸ *Acceptance and continuance is the one candidates forget — the firm must decide whether to take the client on at all, and whether to keep them. Declining is a quality control action.*

PCAOB inspection authority

```
Annually if the firm audits MORE THAN 100 issuers
Triennially if 100 or fewer
```

Where: Authority from SOX 2002; the SEC oversees the PCAOB.

▸ *The PCAOB only inspects ISSUER audits. Non-issuer audits fall under AICPA peer review — a completely different regime, and the exam tests whether you know which is which.*

> **EXAM TIPS — ETHICS, PROFESSIONAL RESPONSIBILITIES & GENERAL PRINCIPLES**
>
> - Independence questions turn on two words: DIRECT (any amount impairs) and MATERIAL (only for indirect interests). Get those right and most of the topic follows.
> - Issuer versus non-issuer is the master distinction in AUD. PCAOB and SOX govern issuers; AICPA and SASs govern non-issuers. Identify which one the question is about before you answer anything.

ASSESSING RISK & DEVELOPING A PLANNED RESPONSE · 14 formulas

The audit risk model, materiality and internal control. The only genuinely quantitative area of AUD.

Audit risk model

```
AR = IR × CR × DR
Solve: DR = AR / (IR × CR)
```

Where: IR = inherent risk, CR = control risk, DR = detection risk.

▸ *DETECTION RISK is the only lever the auditor controls. Inherent and control risk belong to the client — you assess them, you do not set them. This one sentence is the whole model.*

Detection risk — the inverse relationship

```
Higher IR or CR → LOWER acceptable DR → MORE or better substantive procedures.
```

Where: The relationship is inverse.

▸ *If the client is risky, you must work harder. That is all the model says — but the exam will phrase it four different ways to see whether you can follow the direction.*

Risk of material misstatement

```
RMM = IR × CR
```

Where: The client-side risk, before any audit work.

▸ *RMM exists whether or not an audit happens. Assessed at both the FINANCIAL STATEMENT level and the ASSERTION level — and the exam distinguishes between them.*

Materiality benchmarks (planning)

```
0.5–1% of revenues or total assets
5–10% of pre-tax net income
1–2% of equity
Smaller entities: 2–5% of gross profit
```

Where: Professional judgement, anchored to a benchmark.

▸ *Choose the benchmark that matters to the users. For a start-up with no profit, income-based materiality is useless — revenue or assets is the sensible anchor.*

Overall vs performance vs tolerable materiality

```
Overall (OM) = the benchmark calculation
Performance materiality (PM) = 50–75% × OM
Tolerable misstatement = a subset of PM, applied to a specific account
```

Where: PM is a buffer against AGGREGATION risk.

▸ *PM is lower than OM because many small, individually immaterial misstatements can add up to a material one. That aggregation risk is the entire justification for performance materiality.*

Clearly trivial threshold

```
CTT ≈ 5% × Overall materiality
```

Where: Misstatements below this are not even accumulated.

▸ *Below clearly trivial, you do not track it at all. Between clearly trivial and materiality, you accumulate it — and the accumulation may become material.*

Risk assessment procedures (IAO)

```
Inquiry of management and others; Analytical procedures (preliminary); Observation and Inspection
```

Where: REQUIRED for every audit.

▸ *These identify risks — they do NOT by themselves provide audit evidence about the assertions. That distinction is a trap: risk assessment procedures alone are never sufficient.*

COSO internal control — 5 components (CRIME)

```
Control environment, Risk assessment, Information and communication, Monitoring, Existing control activities
```

Where: COSO 2013 adds 17 underlying principles.

▸ *CRIME. The CONTROL ENVIRONMENT is the foundation — tone at the top. If it is weak, no amount of control activities can compensate, and the exam expects you to say so.*

Management's assertions

```
TRANSACTIONS (OCCAC): Occurrence, Completeness, Cutoff, Accuracy, Classification
BALANCES (ECRV): Existence, Completeness, Rights and obligations, Valuation
PRESENTATION (OCCA): Occurrence and rights, Completeness, Classification, Accuracy and valuation
```

Where: Three categories, three sets.

▸ *EXISTENCE (it is really there) tests OVERSTATEMENT. COMPLETENESS (nothing is missing) tests UNDERSTATEMENT. Almost every procedure question reduces to which of those two you are chasing.*

Significant risks — characteristics and response

```
Indicators: complexity, fraud potential, related-party transactions, subjective estimates, non-routine transactions
Response: SUBSTANTIVE procedures are REQUIRED
```

Where: AU-C 315/330.

▸ *For a significant risk you may NOT rely on controls alone — no matter how well those controls tested. Substantive procedures are mandatory. This is an absolute rule and the exam loves absolutes.*

Fraud risk — types and response

```
Two types: misappropriation of assets; fraudulent financial reporting
Response: (a) engagement team discussion (b) inquire of management and the audit committee (c) PRESUME a revenue recognition fraud risk (d) test management override of controls
```

Where: AU-C 240.

▸ *Revenue recognition fraud risk is PRESUMED — you must rebut it if you conclude otherwise, and document why. And testing management override is REQUIRED in every audit, because management can always defeat the controls it designed.*

Going concern evaluation

```
1. Evaluate conditions and events raising substantial doubt about the ability to continue for one year from the F/S ISSUE date
2. Consider management's mitigation plans
3. If doubt remains: require disclosure and add an emphasis-of-matter paragraph
```

Where: ASC 205-40.

▸ *One year from the ISSUE date, not the balance sheet date. If disclosure is inadequate, the opinion becomes QUALIFIED or ADVERSE — a disclosure failure is a GAAP departure.*

Auditor's expert vs management's expert

```
BOTH: evaluate competence, capabilities and objectivity
Auditor's expert (AU-C 620): ALSO evaluate the scope and adequacy of assumptions, methods and data
Management's expert (AU-C 500): ALSO evaluate the work performed and whether it is reliable as audit evidence
```

Where: Whose expert is it?

▸ *The auditor never shares responsibility for the opinion — using an expert does not reduce the auditor's responsibility, and the auditor may not reference the expert in an unmodified report.*

Reperformance vs reliance on controls

```
Reperformance: the auditor independently re-executes a control or procedure (e.g. recomputing payroll) — high-quality evidence
Reliance on controls: test operating effectiveness; if effective, reduce the extent and change the timing of substantive testing
```

Where: Two different responses to control risk.

▸ *You only test controls if you INTEND to rely on them. Testing controls you will not rely on is wasted effort — a point the examiners make explicitly.*

EXAM TIPS — ASSESSING RISK & DEVELOPING A PLANNED RESPONSE

- The audit risk model is the only formula you need. Set AR low, assess IR and CR from the client, solve for the DR you can accept — then design procedures to achieve it.
- Direction of testing: EXISTENCE catches overstatement (vouch from records back to documents). COMPLETENESS catches understatement (trace from documents forward to records). Get this direction right and a whole family of questions opens up.
- Significant risk ⇒ substantive procedures are mandatory. No exceptions, regardless of how well the controls tested.

PERFORMING PROCEDURES & OBTAINING EVIDENCE · 17 formulas

Sampling, confirmations, analytics and the evidence hierarchy. The largest area of the exam.

Attribute sampling — sample size

```
n = R / (TDR − EPER)
```

Where: R = reliability factor; TDR = tolerable deviation rate; EPER = expected population deviation rate.

▸ *The denominator is the room for error. Narrow that gap — either by lowering TDR or raising EPER — and the sample size explodes. That inverse relationship is what gets tested, not the arithmetic.*

Reliability factors (attribute sampling)

```
95% confidence: 0 deviations → R = 3.0;  1 deviation → R = 4.75
90% confidence: 0 deviations → R = 2.31;  1 deviation → R = 3.89
```

Where: From the standard table.

▸ *Higher confidence ⇒ larger R ⇒ larger sample. More confidence always costs more work — there is no free assurance.*

Upper deviation rate

```
UDR = R (at the actual number of deviations found) / n
```

Where: The auditor's statistical ceiling on the true deviation rate.

▸ *If UDR > TDR, the control CANNOT be relied upon — increase substantive testing. Comparing the SAMPLE deviation rate to TDR instead of the UPPER rate is the classic error.*

Attribute sampling — the three components

```
TDR = the maximum deviation rate the auditor will accept and still rely on the control
EPER = the expected rate, based on prior years and risk
Sample size = f(reliability factor, TDR − EPER)
```

Where: Sample size rises as TDR falls or EPER rises.

▸ *Both directions squeeze the same gap. Intuitively: if you will tolerate less error, or you expect more of it, you must look at more items.*

Variables sampling — PPS

```
n = (Recorded amount × RF) / (TM − EM × EF)
```

Where: RF = reliability factor, TM = tolerable misstatement, EM = expected misstatement, EF = expansion factor.

▸ *Probability-proportional-to-size tests OVERSTATEMENT only, and it automatically selects larger items with higher probability. It cannot find an entirely omitted item — because a zero balance has zero chance of selection. That blind spot is the exam point.*

Classical variables sampling

```
Stratify the population; use means and standard deviations. Tests BOTH directions.
```

Where: The alternative to PPS.

▸ *Use classical variables when you are hunting UNDERSTATEMENT, which PPS cannot detect. That is the entire reason to choose it.*

Sufficient appropriate audit evidence

```
Sufficiency = QUANTITY
Appropriateness = QUALITY = Relevance + Reliability
```

Where: BOTH are required.

▸ *More evidence cannot compensate for POOR-QUALITY evidence. A thousand management inquiries do not equal one bank confirmation. That non-substitutability is a favourite conceptual question.*

Reliability hierarchy of evidence

```
1. Auditor's direct knowledge (observation, recalculation) — most reliable
2. External independent sources (bank confirmations, attorney letters)
3. Internal, corroborated externally (signed contracts)
4. Internal, with strong internal control
5. Internal, with weak internal control
6. Inquiry alone — least reliable
```

Where: Six tiers.

▸ *INQUIRY ALONE IS NEVER SUFFICIENT. It must always be corroborated. If an answer option says the auditor relied solely on management inquiry, that option is wrong.*

Confirmations — positive vs negative

```
POSITIVE: the respondent MUST reply, whether they agree or disagree — higher quality
NEGATIVE: the respondent replies ONLY if they disagree — lower quality
```

Where: AU-C 505.

▸ *Negative confirmations are permitted ONLY when all three hold: (1) low risk, (2) many small balances, (3) a low expected exception rate — and the auditor believes recipients will actually read them. No reply to a negative confirmation is not evidence of agreement; it may just be evidence of a bin.*

Test of controls vs substantive procedures

```
Tests of controls: test OPERATING EFFECTIVENESS (frequency, consistency) — performed only if relying on controls
Substantive: tests of details plus analytical procedures, at the assertion level
```

Where: Two different objectives.

▸ *Substantive procedures are ALWAYS required for significant risks, regardless of how the controls tested. You can reduce substantive work through controls, but you can never eliminate it.*

Direction of testing

```
COMPLETENESS: trace source documents FORWARD to the records (shipping docs → sales journal) — catches UNDERSTATEMENT
OCCURRENCE/EXISTENCE: vouch records BACK to source documents (recorded sales → shipping docs) — catches OVERSTATEMENT
```

Where: The direction determines the error you can find.

▸ *Start where the error would be HIDDEN. An unrecorded sale is not in the sales journal, so starting there can never find it — you must start with the shipping documents. This logic answers the question every time.*

Substantive analytical procedures

```
1. Develop an expectation from plausible relationships
2. Set a tolerable difference
3. Compare to the recorded amount
4. Investigate variances above the threshold
```

Where: Required at planning and at final review.

▸ *The expectation must be developed INDEPENDENTLY and BEFORE looking at the recorded amount. Anchoring on the client's number and then rationalising it is not an analytical procedure — it is confirmation bias with a workpaper.*

AR turnover and DSO (as an analytic)

```
AR turnover = Net credit sales / Average AR
DSO = 365 / AR turnover
```

Where: A ratio used as a substantive analytical procedure.

▸ *A DSO that jumps without an explanation suggests either fictitious sales or uncollectible receivables. The ratio does not prove misstatement — it directs where to look.*

CAATs — computer-assisted audit techniques

```
1. Generalised audit software (ACL, IDEA) — query and analyse client data
2. Custom audit programs
3. Integrated test facility — a dummy entity processed through the live system
4. Parallel simulation — the auditor's own program re-runs client data
```

Where: Enables testing of 100% of a population.

▸ *The ITF puts fictitious transactions through the LIVE system, so they must be reversed afterwards. Parallel simulation instead re-runs REAL data through the auditor's program. Both check processing; they do it from opposite ends.*

Audit data analytics

```
Analyse patterns and flag anomalies across FULL populations: Benford's Law on journal entries, revenue cut-off, AR aging, three-way match, duplicate vendors.
```

Where: AICPA Audit Data Standards.

▸ *ADA SUPPLEMENTS traditional procedures — it does not replace them. An anomaly is not a misstatement; it is a place to look.*

Subsequent events procedures

```
Period: balance sheet date → REPORT date. Procedures: read minutes; read interim statements; inquire of management about new commitments; obtain the representation letter; review the legal letter.
```

Where: Type 1 → adjust. Type 2 → disclose.

▸ *DUAL DATING limits the auditor's responsibility for the later period to that ONE specific event. Re-dating the whole report extends responsibility to everything up to the new date — a much heavier commitment.*

Going concern — audit response

```
Disclosure ADEQUATE → unmodified opinion + emphasis-of-matter (going concern) paragraph
Disclosure INADEQUATE → qualified or adverse opinion
Management refuses the paragraph → consider withdrawal
```

Where: PCAOB: also disclose as a critical audit matter.

▸ *A going concern paragraph does NOT modify the opinion — the opinion stays unmodified. Candidates routinely believe substantial doubt forces a qualification. It does not; only inadequate DISCLOSURE does.*

EXAM TIPS — PERFORMING PROCEDURES & OBTAINING EVIDENCE

- Every evidence question reduces to one of two things: what error am I looking for (overstatement or understatement), and how reliable is this source. Answer those and the procedure picks itself.
- Inquiry alone is never sufficient audit evidence. If an option says the auditor relied only on asking management, it is wrong — no matter how reasonable it sounds.
- PPS finds overstatement; classical variables finds both. If a question emphasises unrecorded or omitted items, PPS is the wrong tool.

FORMING CONCLUSIONS & REPORTING · 6 formulas

The opinion ladder. Small section, and the marks are almost free if the vocabulary is exact.

The opinion ladder — 5 outcomes

```
1. Unmodified — fairly stated
2. Unmodified + emphasis-of-matter / other-matter — clean, with a paragraph
3. Qualified — material but NOT pervasive
4. Adverse — material AND pervasive misstatement
5. Disclaimer — scope limitation, material AND pervasive
```

Where: Two variables: material? pervasive?

▸ *Build a 2×2. MISSTATEMENT: material-not-pervasive ⇒ qualified; material-and-pervasive ⇒ ADVERSE. SCOPE LIMITATION: material-not-pervasive ⇒ qualified; material-and-pervasive ⇒ DISCLAIMER. Adverse is about GAAP; disclaimer is about SCOPE. That grid answers every reporting question.*

Audit opinion thresholds

```
Unmodified: no material misstatement, full scope
Qualified: material but not pervasive, OR a scope limitation
Adverse: material AND pervasive GAAP violation
Disclaimer: scope limitation so severe no opinion is possible
```

Where: Pervasive = it affects many items, or is fundamental to understanding.

▸ *PERVASIVE is the word that does the work. It is not about size alone — a single misstatement can be pervasive if it is fundamental to a user's understanding of the statements.*

Going concern paragraph — issuer vs non-issuer

```
ISSUER (PCAOB): an explanatory paragraph, titled "Substantial Doubt About the Company's Ability to Continue as a Going Concern", placed AFTER the opinion
NON-ISSUER (AU-C 570): an emphasis-of-matter paragraph, same concept, after the opinion
```

Where: Same idea, different label.

▸ *In both cases it comes AFTER the opinion paragraph and does NOT modify the opinion. Placement and non-modification are both examinable.*

Critical audit matters (CAMs)

```
A CAM is a matter that (1) was communicated to the audit committee, (2) relates to material accounts or disclosures, AND (3) involved especially challenging, subjective or complex auditor judgement.
```

Where: PCAOB AS 3101 — ISSUER audits only.

▸ *All three conditions, together. Report each CAM by: identifying it, saying why it is a CAM, describing how it was addressed, and naming the accounts affected. CAMs do NOT modify the opinion — they inform the reader.*

SSARS engagements

```
Preparation (AR-C 70): NO assurance, NO report, independence NOT required
Compilation (AR-C 80): NO assurance, report issued, lack of independence permitted IF disclosed
Review (AR-C 90): LIMITED assurance, written report, independence REQUIRED
```

Where: None of the three is an audit; none produces an opinion.

▸ *The ladder of assurance: preparation (none) → compilation (none, but a report) → review (limited, "negative assurance") → audit (reasonable). Only the review requires independence, and only the audit gives an opinion.*

Single Audit (Uniform Guidance)

```
Trigger: a non-federal entity EXPENDS $750,000 or more in federal funds in a year
Components: (1) the financial statement audit (2) a major-program compliance and internal-control audit, selected on a risk basis
```

Where: 2 CFR 200.

▸ *The trigger is EXPENDED, not received or awarded. An entity holding a $2M grant that spent $100,000 this year does not trigger a Single Audit.*

EXAM TIPS — FORMING CONCLUSIONS & REPORTING

- Draw the 2×2 grid: material vs pervasive, misstatement vs scope limitation. Every reporting question lives in one of the four cells.
- Going concern does NOT modify the opinion. Inadequate disclosure of going concern DOES — because that is a GAAP departure. Keep the two ideas apart.
- Adverse = GAAP problem. Disclaimer = scope problem. If you remember only one thing about reporting, remember that.

PASSING AUD

Why candidates fail a section with almost no maths

- The vocabulary is legal, not conversational. Probable ≠ reasonably possible. Material ≠ pervasive. Should ≠ may. Read every word.
- The answer options are all plausible. AUD is a "best answer" exam, not a right-answer exam — you are ranking four defensible statements.
- Candidates over-rely on intuition. Auditing has rules, and the rules sometimes run against instinct (a going concern paragraph does not qualify the opinion).

The high-yield core

- The audit risk model, and knowing that detection risk is the only lever the auditor controls.
- The opinion ladder as a 2×2: material/pervasive against misstatement/scope.
- Direction of testing: existence catches overstatement, completeness catches understatement.
- Issuer vs non-issuer. PCAOB and SOX, or AICPA and the SASs. Identify it before answering.
- Independence: direct interests impair at any amount; indirect only if material.

How to practise

- Do questions, then read the explanation for the options you did NOT pick. AUD is learned by understanding why three plausible answers are wrong.
- When you get one wrong, ask whether it was knowledge or vocabulary. In AUD it is usually vocabulary — and that is a different fix.
- Simulations are heavily weighted. Practise the research task: locating the right standard is a skill, and it is trainable.