

Scholarship aptitude: study guide

Academic admissions, scholarships, and placement · suite apt-348-scholarship-aptitude · generated 2026-09-15T15:38:52.500Z

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Answer keys and scoring logic stay server-side and are never included in any download or export.

How to use this guide

This file contains the whole study outline for this suite: every skill it draws on, the full lesson for each of those skills, worked examples, practice tips, a glossary, and where each piece of material comes from. Nothing here is a summary of a page you still have to visit.

1. Read the skills section end to end once, without timing yourself.
2. Work the guided practice mode for the suite, using the practice tips as a checklist.
3. Move to the mini-test only when guided practice feels unhurried.
4. Sit the full simulation last, once, in the conditions you expect on the day.

Practice attempts are stored on the device you used, never on an account. Exporting a result is the only way anything leaves that device.

Practice modes and durations

Practice modes for Scholarship aptitude

Mode	Duration	What it is for
Guided practice	15 minutes	Untimed, with feedback after every item.
Mini-test	18 minutes	A short timed set for checking pace.
Full simulation	45 minutes	Full length and full time, in one sitting.

- Start guided practice:
<https://learn.novusstreamsolutions.com/aptitude/practice/new?bank=apt-348-scholarship-aptitude&mode=guided>
- Start mini-test:
<https://learn.novusstreamsolutions.com/aptitude/practice/new?bank=apt-348-scholarship-aptitude&mode=mini>
- Start full simulation:
<https://learn.novusstreamsolutions.com/aptitude/practice/new?bank=apt-348-scholarship-aptitude&mode=full>

Skills covered, in full

This suite draws on 5 skill constructs. Each one below carries its complete lesson.

Reading comprehension

Understanding passages, instructions, policies, technical material, and workplace documents.

Reading comprehension is the ability to take a passage, a policy clause, a procedure or a technical note and answer accurately about what it says, what it means, and how it applies to a case in front of you. It is assessed directly in casework, policy analysis, immigration and language-focused batteries, and it sits underneath almost every other written test as the thing that has to work before anything else can. On the job it is the difference between applying an eligibility rule correctly the first time and generating an appeal. Everything you practise here is stored on this device; there is no account and no upload.

What you should be able to do after this lesson:

1. Choose a main-idea answer by testing scope first, and reject options that are true but too narrow, too broad, or about a different passage entirely.
2. Apply a written rule to specific cases, reading AND, OR, 'at least', 'more than' and 'unless' exactly as written and checking the exception clause last.
3. Infer the meaning of a word from the sentence around it rather than from its most common everyday sense.
4. Track referents across sentences - it, this, the former, the latter, the team - and name what each one points at.
5. Separate the author's own stance from views the author is reporting, and read hedging as evidence of stance.
6. Work through a numbered procedure with conditional steps, including cases where two steps both apply.

Worked examples and pitfalls

Main idea: scope, not truth: Passage: 'When the Kirkwall depot adopted route-optimisation software in 2021, its drivers covered 9 percent fewer kilometres in the first quarter, and fuel spending fell by a similar margin. Delivery times improved on urban routes only; rural routes were unchanged, and two drivers reported longer split shifts. The depot manager has kept the software but now overrides its rural schedules by hand.' Which option states the main idea? (a) 'Route-optimisation software reduces fuel costs.' True, and it is exactly one third of the passage - it drops the mixed results and the override, so it is too narrow. (b) 'The software failed at Kirkwall.' Contradicted: mileage and fuel both improved, and the depot kept it. (c) 'Rural deliveries are harder to optimise than urban ones.' A generalisation the passage never makes; it reports one depot, one year, without explaining why rural routes were unchanged. Too broad. (d) 'At one depot the software produced clear mileage and fuel savings but uneven results elsewhere, so it is now used with manual override.' Correct - it covers all three sentences and no more. The lesson generalises: main-idea distractors are usually wrong for scope, and the two commonest failures are a true detail promoted to the main point, and a reasonable-sounding claim the passage never actually makes.

Reading a clause exactly: and, at least, more than, unless: Rule: 'An employee may claim the remote-working allowance if they work from home on at least three scheduled days per week AND their home is more than 40 km from their assigned office, unless they already receive the travel-card subsidy.' Four cases. Priya works from home four days, lives 52 km away, and receives the travel-card subsidy: not eligible - she satisfies both qualifying conditions, and the 'unless' clause overrides both. Tom works from home three days, lives 38 km away, no subsidy: not eligible, because the connective is AND and 38 is not more than 40. Dan works from home two days, lives 60 km away, no subsidy: not eligible, failing the days condition for the same structural reason. Mira works three days, lives 41 km away, no subsidy: eligible - 'at

least three' includes exactly three, and 41 is more than 40. Three separate traps live in one sentence: reading AND as OR under time pressure, treating 'more than 40' as including 40, and forgetting that an exception clause outranks the conditions it follows. The reliable method is to rewrite the rule as a checklist - condition 1, connective, condition 2, then exception - before you look at any case.

Vocabulary in context: the evidence is in the next clause: Sentence: 'The auditor's remarks were characteristically dry, and the board took a full minute to realise she had been criticising them.' Which meaning does 'dry' carry here? (a) arid or lacking moisture, (b) dull and lacking interest, (c) understated and quietly ironic, (d) free of alcohol. Option (b) is the distractor that catches most people, because it is the commonest figurative sense and it half-fits an auditor. But the clause after 'and' is doing the work: a remark that takes a minute to land as criticism is understated, not boring - dullness would not delay recognition, it would only reduce attention. The answer is (c). The general method for vocabulary-in-context items is to ignore the word for a moment, read the rest of the sentence as evidence, and ask what property the sentence requires the word to have. Test items are built so that the most frequent sense of the word is available as an option and is wrong; if the most obvious meaning were correct, the item would measure nothing.

Referents: the former, the latter, and the noun three sentences back: Passage: 'Two remedies were proposed: a fixed surcharge on late filings, and a sliding penalty tied to the amount owed. The committee rejected the former on fairness grounds, noting that it would fall hardest on the smallest filers.' Which remedy was rejected? 'The former' is the first item mentioned, so the fixed surcharge. Candidates who skim choose the sliding penalty because it sits nearer to the pronoun, which is exactly why the item is written this way. Notice also the free consistency check built into the sentence: a fixed amount is the one that lands hardest on small filers, because the same sum is a larger share of a smaller liability, while a penalty tied to the amount owed scales with size by construction. When a passage gives you the reason alongside the reference, use it to confirm the reference. The harder version of this item type replaces 'the former' with a bare 'it' after a sentence containing three noun phrases, and the technique is the same: write the candidate referents in the margin and substitute each one into the sentence to see which produces a sentence the passage could have meant.

Whose view is this? Stance versus report: Passage: 'Supporters of the levy argue that it will fund three new depots within a decade. That projection rests on traffic volumes holding at 2019 levels, which no forecast in the sector now expects.' Question: what is the author's position? (a) The author supports the levy. (b) The author opposes the levy. (c) The author doubts the depot projection. (d) The author has no view. The correct answer is (c). The stance markers are 'rests on', which frames the projection as dependent on a condition, and 'which no forecast now expects', which tells you the condition is not met. Option (b) is the trap, and it is a scope error dressed as a tone question: undermining one argument made by supporters is not opposition to the policy, and the passage says nothing about the levy's other merits or costs. Reading for stance means reading the author's verbs and qualifiers rather than the content of the views being described - a passage can spend four sentences laying out a position it goes on to dismantle in the fifth.

Procedures: when two steps both fire: Instructions: '1. Record the meter reading. 2. If the reading is lower than last month's, do not submit; raise a query instead. 3. Otherwise, submit the reading and file the photo. 4. If the reading is more than double last month's, submit the reading and flag it for review.' Case A: last month 4,180, this month 9,020. Step 2 does not apply, since 9,020 is higher. Step 3 applies: submit and file the photo. Does step 4 also apply? Double 4,180 is 8,360, and 9,020 is more than that, so yes - submit, file the photo, and flag for review. Steps 3 and 4 are not alternatives; nothing in the list makes them exclusive, and both instruct you to submit, which is consistent. Case B: last month 4,180, this month 4,090. Step 2 fires: do not submit, raise a query. Steps 3 and 4 never come into play, because step 3 begins 'otherwise' and step 4's condition is not met either. The trap in case A is treating a numbered list as a decision tree where exactly one branch executes. Read each step's condition independently unless the procedure explicitly says to stop.

How to practise this skill

- Map the passage before you answer: read the first and last sentence of each paragraph and write a three-word label for each. On a 400-word passage this takes about twenty seconds and makes every detail question a lookup instead of a search.
- For every detail answer, put a finger on the sentence that supports it. If you cannot point at one, you are answering an inference question by feel, and that is where the marks go.
- On main-idea items, test scope before truth. Ask of each option: does it cover the whole passage, and does it cover nothing outside it? Two options will usually be true and only one will be the right size.
- Rewrite any policy or eligibility clause as a numbered checklist with the connective and the exception written out separately. Assessors build these items around AND read as OR, and around the boundary values on 'at least' and 'more than'.
- Do not pre-read the options on inference and stance items. Answer in your own words first, then find the option that matches; reading four polished options first makes three of them sound reasonable.
- Log wrong answers by cause - scope, connective, referent, stance, boundary value - rather than by passage topic. The topic never repeats; the cause always does.

Glossary

Main idea: The claim that covers the whole passage and nothing beyond it. It is not the first sentence, not the most interesting fact, and not the most general statement available.

Scope: How much an answer option claims relative to the passage. Most wrong main-idea and inference options are true statements that are simply too narrow or too broad, which is why checking truth alone does not separate them.

Referent: The noun a pronoun or phrase such as it, this, the former, or the team points back to. Ambiguous referents are deliberate in test passages and are resolved by substituting each candidate into the sentence.

Connective: A logical joining word in a rule - and, or, unless, provided that, except where. AND requires every condition; OR requires one; unless introduces an override that outranks what precedes it.

Boundary value: The exact number at the edge of a condition. 'At least three' includes three; 'more than 40' excludes 40; 'up to five' usually includes five. Items are written on these edges because that is where careless reading shows.

Stance: The author's own position, signalled by qualifiers, framing verbs and concessions rather than by direct statement. Distinct from any view the author reports.

Skimming versus scanning: Skimming is a fast first pass for structure and gist; scanning is a targeted hunt for a specific word or figure. Comprehension sections reward doing the first once and the second repeatedly.

Topic sentence: The sentence carrying a paragraph's central claim, most often first or last. Locating them across paragraphs gives you the passage's argument in about a fifth of the reading time.

Study this next

- Reading comprehension skill hub:
<https://learn.novusstreamsolutions.com/aptitude/skills/reading-comprehension>
- Practise the reading comprehension bank:
<https://learn.novusstreamsolutions.com/cognitive-skills/reading-comprehension>
- Verbal reasoning lesson: <https://learn.novusstreamsolutions.com/aptitude/skills/verbal-reasoning/lesson>
- Policy and program analysis suite:
<https://learn.novusstreamsolutions.com/aptitude/tests/policy-and-program-analysis>
- Immigration and asylum casework suite:
<https://learn.novusstreamsolutions.com/aptitude/tests/immigration-and-asylum-casework>
- Reading comprehension lesson on Novus Learn:

Where this material comes from

- Worked items written for Novus Learn. The passages, eligibility rule, instruction list and figures above are original and invented for this lesson; no published or copyrighted test item is reproduced.
- Terminology follows standard, widely published usage in reading instruction and assessment writing - main idea, scope, referent, topic sentence.
- Novus Learn aptitude construct registry (catalog seed) for the construct scope and the suite mapping shown in the related links.
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Written communication

Grammar, vocabulary, sentence correction, clarity, tone, proofreading, and workplace writing.

Written communication is assessed in two quite different ways: multiple-choice sentence-correction and proofreading items that test whether you can name and fix a specific grammatical fault, and free-text exercises - an email, an incident note, a briefing - marked on structure, accuracy and tone. It appears in clerical and administrative entry tests, legal support and paralegal batteries, teacher selection, public relations sifts, and any role where a badly worded sentence becomes somebody else's problem. The two formats reward the same underlying skill: knowing what a sentence claims and making it claim exactly that. Practice is device-local, with no account and nothing uploaded unless you export it.

What you should be able to do after this lesson:

1. Resolve subject-verb agreement across an intervening phrase, and apply the proximity rule for neither/nor and the singular-plural split between 'the number of' and 'a number of'.
2. Identify and repair dangling and misplaced modifiers, including the placement of limiting words such as 'only'.
3. Enforce parallel grammatical form across items in a list or a set of bullets.
4. Recognise a comma splice and choose among the four legitimate repairs, including the case where 'however' is involved.
5. Rewrite nominalised, hedged official prose into plain language while preserving the recommendation and its condition.
6. Draft the same facts for three different readers, and keep observation separate from inference in a record that may be read back later.

Worked examples and pitfalls

Agreement: find the head noun, then decide: 'The set of quarterly returns filed by the three regional offices (was / were) incomplete.' The subject is 'the set', which is singular, so 'was' is correct; 'offices' is merely the nearest noun, sitting inside a prepositional phrase that cannot supply the subject. Strike out everything between the head noun and the verb and the choice becomes obvious - 'the set was incomplete'. Next: 'Neither the manager nor the two supervisors (was / were) informed.' With neither/nor the verb agrees with the nearer of the two subjects, and the nearer one here is 'the two supervisors', so 'were' is correct. Reverse the order - 'Neither the two supervisors nor the manager was informed' - and the correct verb flips to singular, which is a useful check that you are applying the rule rather than guessing. Finally, a pair that trips experienced writers: 'A number of applications are missing' is correct, because 'a number of' functions as a plural quantifier, while 'The number of applications is rising' is also correct, because there 'the number' is a

single quantity. Same three words, opposite verbs.

Dangling modifiers and the wandering 'only': 'Having reviewed the tender documents, the deadline was extended by two weeks.' An opening participial phrase attaches to the subject of the main clause, and the subject here is 'the deadline', so the sentence says the deadline reviewed the documents. It reads acceptably aloud because a listener silently supplies the missing actor, which is precisely why this error survives proofreading. Two clean fixes: name the actor as the subject - 'Having reviewed the tender documents, the panel extended the deadline by two weeks' - or drop the participle entirely - 'The panel reviewed the tender documents and extended the deadline by two weeks.' Now the limiting word. 'We only sent the invoice to three suppliers' literally says that sending was the only thing we did to those three. 'We sent the invoice to only three suppliers' says we sent it to no more than three. 'We sent only the invoice to three suppliers' says we sent nothing else. Three placements, three meanings, one word - put 'only', 'just', 'even' and 'almost' immediately before what they limit, and in a marked item the four options usually differ by nothing else.

Parallelism in a list: 'The role involves drafting reports, client liaison, and to maintain the case register.' Three items in three different grammatical forms: a gerund phrase, a noun phrase, and an infinitive. The repair is to pick one form and hold it: 'The role involves drafting reports, liaising with clients, and maintaining the case register.' Parallelism is worth its own item type because it is the most visible marker of careless list writing, and because real documents fail on it constantly - a bulleted list where two bullets start with a verb and the third starts with a noun, or a set of headings mixing questions and statements. The same rule governs correlative pairs: 'not only ... but also' must join two grammatically matching elements, so 'The report not only covers spending but also staffing' is faulty, and 'The report covers not only spending but also staffing' is correct, because the correlatives now bracket two nouns rather than a verb phrase and a noun.

Comma splice, and why 'however' is not a rescue: 'The system was offline for six hours, no backup was available.' Two independent clauses joined by a comma is a comma splice, and there are four legitimate repairs. Use a full stop: 'The system was offline for six hours. No backup was available.' Use a semicolon, which signals the two facts belong together. Add a coordinating conjunction after the comma: '... six hours, and no backup was available.' Or subordinate one clause: 'Because no backup was available, the six-hour outage could not be mitigated.' The trap is the fifth option that people reach for instinctively: 'The system was offline for six hours, however no backup was available.' However is a conjunctive adverb, not a coordinating conjunction, so it cannot join two independent clauses with a comma - the sentence is still spliced. It needs a semicolon or full stop before 'however' and a comma after it. The same applies to therefore, moreover, nevertheless, and consequently, which is why they appear so often in sentence-correction distractors.

Plain language: 37 words down to 14: Before: 'It is the recommendation of this department that consideration be given to the deferral of the implementation of the new filing procedure until such time as adequate training provision has been made available to all affected staff.' That is thirty-seven words. After: 'We recommend delaying the new filing procedure until all affected staff have been trained.' Fourteen. Look at what the rewrite actually did: it turned three nominalisations back into verbs (recommendation to recommend, deferral to delaying, provision to trained), it named the actor instead of hiding behind 'this department', and it cut 'consideration be given to' and 'until such time as', which carry no content at all. Look just as carefully at what it kept: the recommendation, the thing being delayed, and the condition that ends the delay. Plain-language items are marked on meaning preservation, not on brevity alone, and the standard wrong answer is the over-cut version - 'We recommend delaying the new procedure' - which reads beautifully and silently deletes the condition that is the substance of the recommendation. Trim the packaging, never the payload.

One incident, three readers, and the fact-inference line: Facts: the gate camera timestamps a van leaving at 11:42:00; the weighbridge camera, 300 m along the yard road, timestamps the same van at 11:42:15; the yard limit is 20 km/h. The arithmetic: 300 m in 15 s is 20 m/s, and $20 \times 3.6 = 72$ km/h. Now write it three ways. In the incident record: 'Vehicle VT-118 passed the gate camera at 11:42:00 and the weighbridge camera at 11:42:15. The cameras are 300 m apart, giving an average speed of 72 km/h over that section. The posted yard limit is 20 km/h.' Note what is absent: 'the driver was speeding', which is a conclusion, and

'was travelling at 72 km/h', which overstates the evidence - the figure is an average over the section, not an instantaneous speed. To the yard supervisor: lead with the decision needed and the deadline. 'Two camera timestamps put VT-118 at an average 72 km/h in a 20 km/h yard yesterday morning. I have attached the record. Can you confirm by Friday whether this goes to the safety review?' To the driver's employer: lead with the specific, verifiable reference - vehicle, date, time, the two camera points - and the single action requested. Same facts every time; what changes is which fact leads, and in a written-communication assessment the most apologetic option is rarely the best one, while any option that names blame in a record that has not been reviewed is usually the worst.

How to practise this skill

- Proofread in separate passes, one error class at a time - agreement, then modifiers, then punctuation, then numbers and names. A single pass looking for 'anything wrong' reliably finds fewer errors than three narrow passes taking the same total time.
- Read your draft aloud, or subvocalise it. Comma splices, dropped words and lost parallelism are audible even when they are invisible; dangling modifiers are the exception, which is why they need a deliberate check of what each opening phrase attaches to.
- On sentence-correction items, diagnose before you choose. Name the fault in the original in three words, then look for the option that fixes exactly that and introduces nothing new. Options that fix the fault while adding a second one are standard.
- Read every option to the end. Sentence-correction distractors commonly differ from the correct answer only in the last two or three words, and candidates who stop once the opening looks right lose marks they never see.
- For free-text tasks, spend the first minute on a three-line plan: purpose, the single action you want from the reader, and the deadline. Untimed free-text answers are usually well written and structurally shapeless, and structure is what the mark scheme can see.
- Keep a personal error list of the mistakes you actually make rather than a generic grammar checklist. Most writers repeat three or four faults, and proofreading against your own four is far faster than proofreading against forty.

Glossary

Subject-verb agreement: The requirement that the verb match the grammatical number of the subject's head noun, not of the nearest noun. Long prepositional phrases between the two are the standard way this is tested.

Dangling modifier: An introductory phrase whose implied actor is not the subject of the main clause, so the sentence attributes the action to the wrong thing. Fixed by naming the actor as the subject or by rewriting the phrase as a full clause.

Parallelism: Matching grammatical form across items in a list or across correlative pairs such as not only / but also. The commonest breach mixes gerunds, nouns and infinitives in a single series.

Comma splice: Two independent clauses joined only by a comma. Repaired with a full stop, a semicolon, a coordinating conjunction, or subordination - never by inserting however, therefore or moreover after the comma.

Nominalisation: A verb converted into a noun - implement becomes implementation, decide becomes decision. Nominalised prose hides who does what and typically doubles the word count for the same content.

Register: The level of formality and the vocabulary appropriate to a particular reader and purpose. A message can be grammatically perfect and still wrong in register, which is what free-text tasks are largely marking.

Active and passive voice: Active names the actor before the verb; passive can omit the actor entirely.

Passive is legitimate when the actor is unknown or genuinely irrelevant, and evasive when it is used to avoid naming a responsible party.

Observation versus inference: An observation is what a camera, meter or witness recorded; an inference is the conclusion drawn from it. Records that mix the two are hard to defend later, because the conclusion cannot be separated from its basis.

Study this next

- Written communication skill hub:
<https://learn.novusstreamsolutions.com/aptitude/skills/written-communication>
- Practise the written communication bank:
<https://learn.novusstreamsolutions.com/cognitive-skills/written-communication>
- Reading comprehension lesson:
<https://learn.novusstreamsolutions.com/aptitude/skills/reading-comprehension/lesson>
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Where this material comes from

- Worked items written for Novus Learn. Every faulty sentence, rewrite, word count and incident figure above is original and invented for this lesson; no published or copyrighted test item is reproduced.
- Grammatical terminology follows standard, widely published usage - subject-verb agreement, dangling modifier, parallelism, comma splice, nominalisation.
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Numerical reasoning

Arithmetic, fractions, percentages, ratios, rates, estimation, word problems, and number relationships.

Numerical reasoning is the ability to take a small set of supplied numbers (a price list, a staffing table, a fuel figure), and reach a defensible answer in around ninety seconds without a formula sheet. It is the most widely used quantitative section in graduate, management and public-sector screening, and it appears in banking, retail, armed forces and healthcare entry batteries alike. The arithmetic itself is deliberately ordinary: percentages, ratios, rates and averages. What is actually being measured is whether you pick the right operation quickly, keep the units straight, and answer the question that was asked rather than the one you started computing. Practice here is device-local: no account, and nothing leaves this device unless you export it.

What you should be able to do after this lesson:

1. Move between fractions, decimals, percentages and ratios on sight, and pick whichever form makes a given item fastest (12.5 percent as one eighth, 33.3 percent as one third).
2. Apply percentage change in both directions, including recovering an original figure from a post-increase total, and combine successive changes multiplicatively rather than by adding them.
3. Split a total in a stated ratio by counting parts first, and work backwards from a stated difference between

two shares.

4. Solve rate problems (speed, unit price, consumption, combined work rates) by carrying units through every intermediate line so the units of the answer prove the method.
5. Produce a one-significant-figure estimate before computing, and use it to eliminate the distractors built from the common wrong operations.
6. Read a multi-step stem and name, in one sentence, the single quantity the final question asks for before touching the numbers.

Worked examples and pitfalls

Reverse percentages: the item most candidates get backwards: A subscription price rose by 15 percent and now stands at 57.50 pounds. What was it before? The correct move is to divide, not subtract: the new price is 115 percent of the old, so the old price is $57.50 / 1.15 = 50.00$. Check it forwards: 15 percent of 50 is 7.50, and $50 + 7.50 = 57.50$. The tempting wrong answer takes 15 percent of the NEW figure, $0.15 \times 57.50 = 8.625$, and reports 48.88. That distractor is always on the option list because it is what most people do under time pressure, and it is wrong by 2.25 percent, small enough to look plausible. The same asymmetry drives the successive-change item: a price that rises 20 percent and then falls 20 percent does not return to where it started. Multiply the factors: $1.20 \times 0.80 = 0.96$, a net fall of 4 percent. Starting at 500 pounds you get 600 then 480, not 500. Percentages compose by multiplication; they never add.

Ratio splits: count the parts before you divide: A 4,830 pound budget is split between three teams in the ratio 3:5:6. Add the parts first: $3 + 5 + 6 = 14$. One part is $4,830 / 14 = 345$. The shares are $3 \times 345 = 1,035$, $5 \times 345 = 1,725$ and $6 \times 345 = 2,070$, and they sum back to 4,830, which is the check you should always run. Two classic failures. The first is dividing by 3 because there are three teams. That gives 1,610 each and ignores the ratio entirely. The second is treating 5 as a fraction and computing five sixths or five fourteenths of something other than the total. The more interesting version of this item gives you a difference instead of the total: 'the second team receives 690 pounds more than the first, what is the whole budget?' The difference between the shares is $5 - 3 = 2$ parts, so one part is $690 / 2 = 345$, and the budget is $14 \times 345 = 4,830$. Same number, reached from the other end, and the arithmetic is trivial once you have made the parts explicit.

Rates and units: 2 h 15 min is 2.25, not 2.15: A delivery van covers 174 km in 2 hours 15 minutes. Average speed is distance over time, and the time must be in hours: 15 minutes is $15/60 = 0.25$ h, so $174 / 2.25 = 77.3$ km/h. Type 2.15 into the calculator instead and you get 80.9 km/h: an error of roughly 4.7 percent that sits comfortably inside the plausible range and will match one of the options. Now extend it. The van consumes 8.6 litres per 100 km, so the trip needs $174 \times 8.6 / 100 = 14.964$ litres, and at 1.48 pounds per litre that is $14.964 \times 1.48 = 22.15$ pounds. Notice the units doing the work: (km) $\times$ (L / 100 km) leaves litres; (L) $\times$ (pounds / L) leaves pounds. If your intermediate line has km still attached at the end, you have divided when you should have multiplied. Write the unit next to every number and the method checks itself.

Unit pricing: normalise before you compare: Three pack sizes of the same fluid. Pack A: 750 ml for 3.60 pounds. Pack B: 2 litres for 9.40. Pack C: 1.5 litres for 7.20. Convert all three to price per litre. A: $3.60 / 0.75 = 4.80$ per litre. B: $9.40 / 2 = 4.70$. C: $7.20 / 1.5 = 4.80$. So B is cheapest by 10p a litre, and A and C are identical despite looking like different deals. The 'bigger pack is cheaper' heuristic happens to hold here but is not a rule, and test writers know it. Half of these items are built specifically so the largest pack loses. Now add the multibuy that these questions love: pack A is on three-for-two. Three packs give 2.25 litres for the price of two, 7.20 pounds, which is $7.20 / 2.25 = 3.20$ per litre and beats everything. The trap in the multibuy version is dividing by the number of packs paid for rather than the volume received.

Combined work rates: add rates, never times: Printer A completes a 3,000-page run in 50 minutes; printer B completes the same run in 75 minutes. Running together, how long? Convert to rates: A prints $3,000 / 50 = 60$ pages per minute, B prints $3,000 / 75 = 40$ pages per minute, and together they print 100 pages per minute, so the job takes $3,000 / 100 = 30$ minutes. Verify by counting output: in 30 minutes A produces 1,800

pages and B produces 1,200, which is 3,000 exactly. The two wrong answers you will see on the option list are 62.5 minutes (the average of 50 and 75) and 125 minutes (the sum). Both are impossible on inspection: two machines working together must finish faster than the faster machine alone, so any answer above 50 minutes is wrong before you compute anything. The general form is $1 / (1/50 + 1/75)$, and it is worth being able to write that line directly, but the sanity bound catches the error faster than the algebra does.

Estimate first, then compute: killing distractors in ten seconds: 'A department spent 847,300 pounds in 2024. In 2025 the budget fell by 12.5 percent. What was the 2025 spend?' Options: 741,387.50 / 953,212.50 / 105,912.50 / 762,570. Estimate before anything else: 12.5 percent is exactly one eighth, one eighth of roughly 850,000 is roughly 106,000, so the answer is roughly 744,000. That single line eliminates three options. 953,212.50 applied the change upwards. 105,912.50 is the size of the reduction, not the resulting spend: the 'answered the wrong question' distractor, and the most commonly selected wrong option on items of this shape. 762,570 is a 10 percent cut, planted for anyone who misread the rate. Exact working: $847,300 \times 7/8 = 5,931,100 / 8 = 741,387.50$. Doing it as a fraction avoids the decimal multiplication altogether. Learn the fraction equivalents cold (12.5 percent is $1/8$, 16.7 percent is $1/6$, 37.5 percent is $3/8$, 62.5 percent is $5/8$) because a fraction turns most percentage items into one division.

How to practise this skill

- Memorise the fraction-to-percentage table up to eighths and twelfths. Almost every 'nasty' percentage on these tests is a clean fraction in disguise, and the fraction route is two or three times faster than decimal multiplication.
- Write the unit beside every intermediate number, including the ones you keep in your head. Most numerical errors on timed sections are unit errors, not arithmetic errors, and units are the only cheap way to catch them.
- Rehearse reverse percentages as their own drill until dividing by 1.15 feels more natural than subtracting 15 percent. It is a single, identifiable technique that accounts for a disproportionate share of lost marks.
- Before selecting, re-read the last clause of the stem out loud. 'By how much did it fall' and 'what was it after the fall' have different answers, and both are always on the option list.
- Keep an error log with four columns (misread the question, wrong operation, unit slip, arithmetic slip), and tally which one you actually commit. Three sessions is usually enough to show that one column dominates, and that is the column to train.
- Work untimed until your method is stable, then add the clock in stages: generous, then realistic, then 20 percent tighter than the real test. Attempts stay on this device, so a slow first pass costs nothing.

Glossary

Percentage point: The arithmetic difference between two percentages. A rate moving from 4 percent to 5 percent rises by one percentage point but by 25 percent in relative terms; questions specify which they want and the two answers are both on the option list.

Reverse percentage: Recovering an original amount from a figure that already includes a percentage change, by dividing by the multiplier (1.15 for a 15 percent rise, 0.88 for a 12 percent fall) rather than subtracting the percentage from the new figure.

Multiplier (decimal factor): The single number a quantity is multiplied by to apply a percentage change: 1.20 for plus 20 percent, 0.80 for minus 20 percent. Successive changes are handled by multiplying the factors, which is why plus 20 then minus 20 gives 0.96, not 1.

Ratio part: One unit of a ratio split. Dividing the total by the sum of the ratio terms gives the value of one part; every share and every difference between shares is then a whole number of parts.

Unit rate: A quantity expressed per one of something: price per litre, pages per minute, litres per 100 km. Comparisons are only valid once every option has been converted to the same unit rate.

Combined rate: The sum of two or more individual rates working simultaneously. Times cannot be added or averaged; only rates add, and the combined time is the total work divided by the combined rate.

Significant figure estimate: Rounding every input to one meaningful digit to get an approximate answer in a few seconds. Its purpose is not accuracy but elimination: it removes any option that is off by a factor or has the sign of the change wrong.

Distractor: A wrong option written deliberately to match a specific predictable error: subtracting instead of dividing, reporting the change instead of the result, averaging instead of combining rates. Recognising the pattern is often faster than recomputing.

Study this next

- Numerical reasoning skill hub: <https://learn.novusstreamsolutions.com/aptitude/skills/numerical-reasoning>
- Numerical reasoning practice in the Cognitive Skills Lab:
<https://learn.novusstreamsolutions.com/cognitive-skills/numerical-reasoning>
- Data interpretation lesson:
<https://learn.novusstreamsolutions.com/aptitude/skills/data-interpretation/lesson>
- Office numeracy suite: <https://learn.novusstreamsolutions.com/aptitude/tests/office-numeracy>
- Finance, accounting and insurance careers:
<https://learn.novusstreamsolutions.com/careers/families/finance-accounting-and-insurance>
- Numerical reasoning lesson on Novus Learn:
<https://learn.novusstreamsolutions.com/aptitude/skills/numerical-reasoning/lesson>

Where this material comes from

- All worked figures above were written and checked for Novus Learn. Every division, ratio split and rate calculation in this lesson was verified by recomputing it in the reverse direction.
- Conventions only (percentage point, unit rate, significant figures) cross-checked against standard public references such as the Wikipedia articles 'Percentage', 'Ratio' and 'Rate (mathematics)'. No item text is drawn from any published test.
- Novus Learn aptitude construct registry (catalog seed) for construct scope and suite mapping.
- Public educational framing only: not affiliated with any official exam board, publisher or employer, and no copyrighted test item is reproduced.

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Critical thinking

Evaluating evidence, assumptions, arguments, credibility, and alternative explanations.

Critical thinking assessments ask you to take an argument apart: what is being concluded, what it rests on, what evidence would settle it, and whether a proposed conclusion actually follows. Published critical-thinking batteries typically run five task types - inference, recognition of assumptions, deduction, interpretation, and evaluation of arguments - and they are deliberately built so that agreeing with a conclusion and judging the argument as strong come apart. The construct is heavily weighted in policy analysis, audit, legal, investigative and graduate selection, and it is the same skill that stops a plausible chart from turning into a bad decision. Practice stays on this device; there is no account and nothing is uploaded unless you export it.

What you should be able to do after this lesson:

1. State an argument's conclusion in your own words before evaluating it, and identify which sentences are premises and which are background.
2. Use the negation test to separate a required assumption from a statement that would merely strengthen

the argument.

3. Distinguish validity from truth, and identify affirming the consequent as distinct from the valid modus tollens form.
4. Compute a posterior probability on a screening example and explain why the rate of true positives among all positives is far lower than intuition suggests.
5. Generate at least two alternative explanations - selection, reverse causation, a common third factor - for any claimed causal effect, and name the comparison that would rule them out.
6. Judge argument strength on relevance and directness rather than on agreement, including marking arguments you personally reject as strong.

Worked examples and pitfalls

The negation test finds assumptions; nothing else does: Argument: 'The council should fit bin sensors across the district. In the trial depot they cut collection trips by a fifth.' Candidate assumption A: 'The trial depot's waste pattern is broadly representative of the rest of the district.' Negate it - suppose the trial depot is nothing like the rest of the district - and the argument collapses, because a result that does not transfer supports nothing about the district. So A is a required assumption. Candidate assumption B: 'Bin sensors are the cheapest available technology for this purpose.' Negate it - suppose they are the most expensive - and the argument still stands as given, since it argued from a reduction in trips, not from cost. B is not required; it would strengthen a cost-based argument that was never made. Candidate C: 'Fewer collection trips reduce total operating cost.' Negate it and the recommendation loses its point, so C is required too, even though the argument never mentions cost. That last case is the one candidates miss, because the required assumption is what bridges the evidence to the recommendation, and bridging assumptions are by definition unstated. The failure mode across this whole item type is picking statements that support the conclusion instead of statements the argument cannot survive without.

Base rates: 90 percent accurate, 15 percent right: A production line runs an automated defect test. Defects occur in 1 percent of units. The test flags 90 percent of genuinely defective units, and wrongly flags 5 percent of good units. A unit has just been flagged - how likely is it to be defective? Work in whole units rather than probabilities. Take 10,000 units: 100 are defective and 9,900 are good. Of the 100 defective, the test flags 90. Of the 9,900 good, it wrongly flags 5 percent, which is 495. Total flags: $90 + 495 = 585$. Of those, 90 are genuine, so the answer is $90 / 585 = 15.4$ percent. Better than the 1 percent base rate, and nowhere near the 90 percent that intuition offers. The error has a name - confusing the probability of a flag given a defect with the probability of a defect given a flag - and it has a practical consequence: the rework queue has to be sized for 585 units a batch, not 100, and 495 of the 585 units sitting in it are perfectly good. Whenever a test, screening rule or model accuracy figure appears in an item, ask how many of the negatives there are, because with a rare condition the false positives from a large clean population swamp the true positives from a small affected one.

Three alternative explanations, and the comparison that settles it: Claim: 'Employees who attended the optional resilience workshop took 30 percent fewer sick days last year, so the workshop works.' Alternative one, selection: attendance was optional, so the people who signed up may have been the healthier and more engaged to begin with, and would have taken fewer sick days regardless. Alternative two, reverse direction: employees who were frequently unwell were the least able to attend a full-day workshop, so illness determined attendance rather than the other way round. Alternative three, a common third factor: the workshop ran on Thursday afternoons at head office, so attendance largely tracks being an office-based rather than shift-based worker, and shift workers take more sick leave for reasons that have nothing to do with resilience training. What would settle it: randomly assigning the offer to half the workforce and comparing the two groups. Failing that, the cheapest useful check already exists in the payroll data - compare attendees' and non-attendees' sick days in the year before the workshop. If attendees were already 30 percent lower, selection is doing the entire job. The habit worth building is to name the comparison group before you accept any before-and-after number.

Deduction: affirming the consequent versus modus tollens: Rule: 'If an invoice is over 10,000 euro, it requires two signatures.' Argument A: 'This invoice has two signatures, therefore it is over 10,000 euro.' Invalid - this is affirming the consequent. The rule makes two signatures necessary for large invoices; it says nothing that prevents a cautious manager from double-signing a 400 euro invoice, so a two-signature invoice of any size is consistent with the rule. Argument B: 'This invoice has only one signature, therefore it is not over 10,000 euro.' Valid - this is modus tollens, denying the consequent to deny the antecedent, and it holds assuming the rule was followed. Argument C: 'This invoice is not over 10,000 euro, therefore it does not have two signatures.' Invalid again, denying the antecedent. Two further points that deduction items test directly. First, validity is about form alone: 'All banks close on Sundays; Riverton Mutual is a bank; therefore Riverton Mutual closes on Sundays' is perfectly valid even if the first premise is false, and a valid argument with a false premise can deliver a false conclusion. Second, in these items you must accept the premises as given even when you know them to be untrue, because the question is whether the conclusion follows, not whether it is true.

Interpretation: what a survey figure does and does not license: Data: all 1,200 employees of a firm were surveyed. 62 percent said they would accept a four-day week at 90 percent pay. Of those who said yes, 71 percent were under 35. Conclusion one: 'A majority of this firm's employees would accept the trade.' This follows - 62 percent of a complete census of the firm is a majority, and the conclusion is properly limited to this firm. Conclusion two: 'A majority of the firm's under-35 employees would accept the trade.' This does not follow, and the arithmetic shows why. Sixty-two percent of 1,200 is 744 accepters, and 71 percent of 744 is about 528 accepters aged under 35. That is the composition of the accepters, not the acceptance rate within the under-35 group, and without knowing how many under-35s the firm employs the rate is undetermined: if there are 900, the rate is $528 / 900 = 59$ percent; if there are 600, it is 88 percent; if there were 1,100 the rate would be below half. Conclusion three: 'The firm should move to a four-day week.' This does not follow either - a stated preference about pay says nothing about output, shift cover, customer hours or cost. Notice that conclusion two is the base-rate error from the screening example, wearing survey clothing.

Strong and weak arguments on the same question: Question: should the agency publish raw inspection scores for every site? Strong argument for: 'In the neighbouring authority, publication was followed by a measurable fall in repeat violations, which is the stated aim of the inspection regime.' It is directly about this decision, it addresses the regime's own objective, and it offers evidence - and if true it would change your view. Weak argument for: 'Yes, because transparency is always good.' Sweeping, unsupported, and it would apply identically to publishing anything at all, which is the tell. Strong argument against: 'Raw scores omit the severity weighting, so a site with one critical failure can rank above a site with six minor ones, and a member of the public cannot see the difference.' Specific, mechanistic, directly about the proposal, and it would change your view. Weak argument against: 'No, because businesses will object.' It may be true and it may matter politically, but it does not bear on whether publication achieves the regime's aim, and no evidence is offered. Two tests separate strong from weak: is the argument about the exact question asked, and would accepting it change the decision? Note that you can hold a firm personal view on publication and still be required to mark the argument on the other side as the strong one - that split is what the item type is measuring.

How to practise this skill

- Negate every candidate assumption out loud. If the argument survives the negation, it was never an assumption, however supportive it sounds. This single habit converts the assumption item type from guesswork into a mechanical check.
- Write the conclusion in your own words before reading any option. Half of the wrong answers on inference and evaluation items are responses to a conclusion the argument never reached.
- Ask 'percentage of what?' on every percentage in the stimulus and reconstruct the denominator in whole units. Base-rate and composition errors both dissolve the moment you write out counts instead of rates.
- Deliberately practise marking arguments you disagree with as strong and arguments you agree with as

weak. Assessments in this construct are built to catch agreement masquerading as evaluation, and the effect is largest on politically loaded stimuli.

- For any causal claim, write two alternatives - selection and a third factor - and name the comparison group that would rule them out, before you decide whether the evidence supports the claim.
- Log wrong answers by task type rather than by topic: inference, assumption, deduction, interpretation, evaluation. Candidates are rarely weak across all five, and the profile tells you where the next hour of practice belongs.

Glossary

Conclusion: The claim an argument is trying to establish. It is not always last, is often signalled by therefore, so, or should, and locating it correctly determines every subsequent judgement about the argument.

Assumption: An unstated premise the argument requires in order to work. Identified by negation: negate it and a genuine assumption brings the argument down, while a merely helpful statement leaves it standing.

Validity and soundness: An argument is valid when the conclusion cannot be false while the premises are true, which is a property of form alone. It is sound when it is valid and the premises are actually true.

Affirming the consequent: The invalid pattern 'if P then Q; Q; therefore P'. It is the most common deductive distractor because it differs from the valid modus tollens form by only the position of a negation.

Base rate: How common something is in the population before any test or evidence is applied. Ignoring it makes accurate-sounding tests appear far more informative than they are when the condition is rare.

Confounder: A third factor associated with both the supposed cause and the outcome, capable of producing the entire observed relationship on its own. Ruled out by randomisation or by an explicit comparison group.

Selection effect: A difference between groups created by how people entered them rather than by the treatment under study. Optional programmes and voluntary surveys are where it appears most often.

Falsifiability: The property of a claim that some observation could show it to be wrong. A claim compatible with every possible result carries no information, which is why 'what would change your mind?' is a diagnostic question.

Study this next

- Critical thinking skill hub: <https://learn.novusstreamsolutions.com/aptitude/skills/critical-thinking>
- Practise the critical thinking bank: <https://learn.novusstreamsolutions.com/cognitive-skills/critical-thinking>
- Verbal reasoning lesson: <https://learn.novusstreamsolutions.com/aptitude/skills/verbal-reasoning/lesson>
- Government audit suite: <https://learn.novusstreamsolutions.com/aptitude/tests/government-audit>
- Investigator and detective reasoning suite:
<https://learn.novusstreamsolutions.com/aptitude/tests/investigator-and-detective-reasoning>
- Critical thinking lesson on Novus Learn:
<https://learn.novusstreamsolutions.com/aptitude/skills/critical-thinking/lesson>

Where this material comes from

- Worked items written for Novus Learn. The arguments, survey figures, defect-test numbers and evaluation options above are original and invented for this lesson; no published or copyrighted test item is reproduced.
- The five task types named in the summary - inference, assumption, deduction, interpretation, evaluation of arguments - describe a structure used publicly across several critical-thinking assessments; no affiliation with any publisher is claimed or implied.
- Terminology follows standard, widely published usage in introductory logic and research methods - validity, soundness, affirming the consequent, base rate, confounder, selection effect.

- Novus Learn aptitude construct registry (catalog seed) for the construct scope and the suite mapping shown in the related links.
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Situational judgment

Evaluating workplace responses against role-relevant principles.

Learn a repeatable way to compare workplace responses: establish the facts, identify duties and risks, respect role boundaries, then choose a proportionate first action. This is educational preparation, not an official scoring guide.

What you should be able to do after this lesson:

1. Separate facts stated in a scenario from assumptions that the scenario does not support.
2. Rank response options by immediate risk, policy or role obligations, proportionality, and follow-through.
3. Explain why a strong first action is better than passive, punitive, or unauthorized alternatives.

Worked examples and pitfalls

Worked scenario: an unverified safety concern: A colleague reports a possible equipment fault while a deadline is approaching. First distinguish the known fact, the report, from the unverified cause. A strong response protects people and affected work, checks the concern through the right channel, tells the relevant lead, and records what was done. Ignoring the report underreacts; shutting down unrelated work or accusing someone before checking the facts overreacts.

Method: facts, duties, risks, response: Write four short notes before ranking options: what is known, who may be affected, which duty or boundary applies, and what safe next step is available now. Prefer an action that addresses the immediate issue and creates useful follow-through. Do not reward an option merely because it sounds decisive.

How to practise this skill

- Answer the question asked: best first action, worst action, or complete response are different tasks.
- Check whether an option acts within the person's authority and escalates only as far as the risk requires.
- When two options look reasonable, prefer the one that gathers missing facts and communicates ownership.

Glossary

Proportionality: Matching the urgency and scope of a response to the evidence, likely impact, and authority available.

Role boundary: The limit of what a person may decide or do without approval, specialist help, or escalation.

Follow-through: Confirming ownership, recording the decision, and checking that the issue was actually resolved.

Study this next

- Situational judgement test:
<https://learn.novusstreamsolutions.com/search?q=Situational%20judgement%20test>
- Workplace ethics: <https://learn.novusstreamsolutions.com/search?q=Workplace%20ethics>

- Decision-making: <https://learn.novusstreamsolutions.com/search?q=Decision-making>
- Situational judgment lesson on Novus Learn:
<https://learn.novusstreamsolutions.com/aptitude/skills/situational-judgement/lesson>

Where this material comes from

- Novus Learn original situational-judgment suite scenarios and published construct mapping.
- Novus educational framework: facts, duties, risks, role boundaries, proportional action, and follow-through.

Educational preparation only. Novus Learn does not administer official exams and does not guarantee scores or hiring outcomes.

Recommended preparation

- Practice reading comprehension:
<https://learn.novusstreamsolutions.com/aptitude/skills/reading-comprehension/lesson>
- Practice written communication:
<https://learn.novusstreamsolutions.com/aptitude/skills/written-communication/lesson>
- Strengthen critical thinking: <https://learn.novusstreamsolutions.com/aptitude/skills/critical-thinking/lesson>

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