

ACT Formula and Strategy Guide

The ACT's four core sections plus optional Writing: English and rhetorical skills, Math and modeling, Reading and evidence, and Science reasoning and data interpretation — with the fastest valid method and pacing target for each.

SECTIONS	5	WORKED EXAMPLES	1	FORMAT	Print friendly
----------	---	-----------------	---	--------	----------------

How to use this guide

A formula you cannot place is not knowledge yet. Work the recall drill below before the questions.

- The ACT is faster-paced than the SAT: know your per-question time budget for each section before you start (roughly 36 seconds per English question, 60 seconds per Math question).
- For Science, most questions can be answered directly from a graph or table without outside content knowledge — locate the right figure first.
- Skip and mark any question that requires re-reading from scratch; return to it only after finishing questions you can answer directly.

1. English and rhetorical skills

NAME	FORMULA	WHEN TO USE
Subject-verb agreement	the verb matches the true subject, not the nearest noun	A phrase separates the subject from the verb.
Punctuation with clauses	comma joins a dependent and independent clause; semicolon joins two independent clauses	Two ideas need to be connected correctly.
Redundancy and conciseness	the shortest option that preserves meaning is usually correct	Two choices say the same thing at different lengths.
Rhetorical purpose	check what the question ASKS (add, delete, or which sentence achieves a stated goal)	The question tests the effect of a choice, not just grammar.

2. ACT Math and modeling

NAME	FORMULA	WHEN TO USE
Slope-intercept form	$y = mx + b$	Reading rate and starting value from a linear equation.
Quadratic formula	$x = (-b \pm \sqrt{b^2 - 4ac}) / (2a)$	Factoring doesn't work cleanly.

NAME	FORMULA	WHEN TO USE
Right-triangle trig (SOH-CAH-TOA)	$\sin = \text{opposite/hyp}$, $\cos = \text{adjacent/hyp}$, $\tan = \text{opposite/adjacent}$	An angle and two sides of a right triangle.
Matrices and basic statistics	add/subtract matrices entrywise; mean = sum/count	A word problem models a data table or grid.

3. Reading and evidence

NAME	FORMULA	WHEN TO USE
Main idea	the point the entire passage supports	Asked for the passage's overall point, not a detail.
Direct reference	find the exact line the question points to before answering	The question references a specific detail or line number.
Inference	the conclusion the passage most strongly supports, without new outside facts	Asked what the passage 'suggests' or 'implies'.

4. Science reasoning and data interpretation

NAME	FORMULA	WHEN TO USE
Reading a data table	match the row/column the question specifies exactly	A table gives values across trials or conditions.
Reading a graph	identify the trend, then read the specific requested value	A line or scatter graph shows a relationship between variables.
Comparing viewpoints	identify what each scientist's model agrees or disagrees on	Two or more conflicting hypotheses are presented.
Experimental design	identify the independent variable, dependent variable, and control	The question asks about the setup or a controlled comparison.

WORKED EXAMPLE

A table shows reaction rate at $10^{\circ}\text{C} = 2 \text{ mL/min}$, at $20^{\circ}\text{C} = 4 \text{ mL/min}$, at $30^{\circ}\text{C} = 8 \text{ mL/min}$. Predict the rate at 40°C .

1. Rate doubles every 10°C increase
2. 30°C rate = 8 mL/min
3. 40°C rate = $8 \times 2 = 16 \text{ mL/min}$

Check: The pattern is consistent across every given interval, so extending it one more step is valid.

5. Optional Writing and argument

NAME	FORMULA	WHEN TO USE
Thesis clarity	state a clear position on the prompt's specific question in the first paragraph	Opening the essay.
Perspective analysis	evaluate the given perspectives rather than only stating agreement or disagreement	The prompt provides three perspectives to analyze.
Evidence and reasoning	support claims with specific, developed examples, not general statements	Building body paragraphs.

Notes and tutor hand-off

Bring this page to your next session so the tutor can start from what actually blocked you.

Which section (English, Math, Reading, Science, Writing) needs more timed practice?

One Science question type that took longer than 50 seconds:

Worksheet question numbers to review with a tutor:
