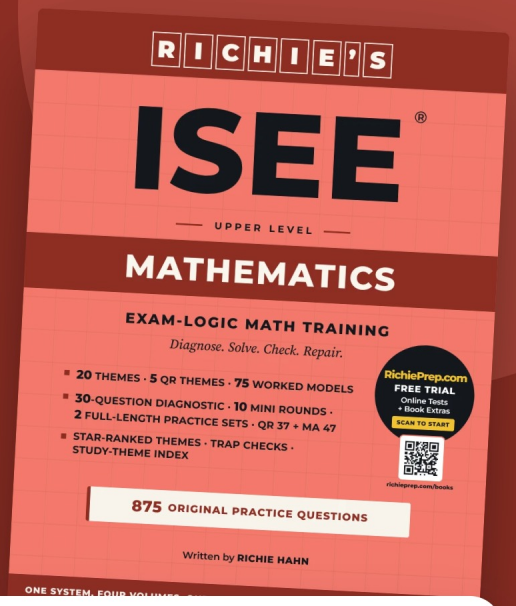
INSIDE THE BOOK

338 pages · 8.5 × 11 in

Mathematics

EXAM-LOGIC MATH TRAINING

Train the decision behind each problem — in both sections.



The Upper Level ISEE asks one question twice — in Quantitative Reasoning, where the arithmetic is light and the thinking is heavy, and in Mathematics Achievement, where the content is broader and the pace is faster: which decision does this problem demand?

25
FOCUSED THEMES

875
ORIGINAL PRACTICE QUESTIONS

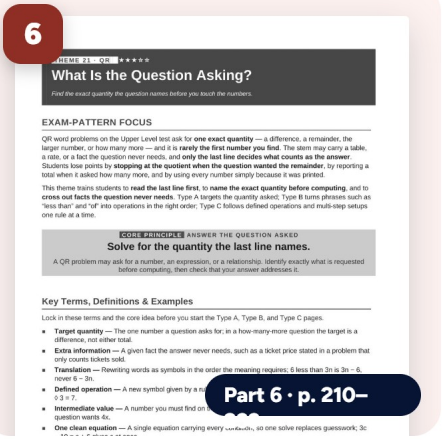
75
WORKED MODELS

1 + 10 + 2
DIAGNOSTIC · ROUNDS · PRACTICE SETS

Three corners that make this book different

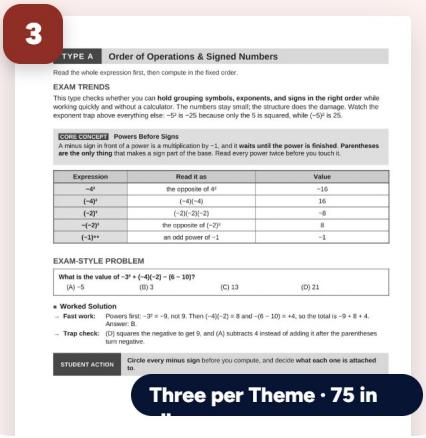
REAL PAGES

6


THEME 21 · QR ★★★★★
What Is the Question Asking?
Find the exact quantity the question names before you touch the numbers.
EXAM-PATTERN FOCUS
QR word problems on the Upper Level test ask for **one exact quantity** — a difference, a remainder, the larger number, or how many more — and it is **rarely the first number you find**. The stem may carry a table, a rate, or a fact the question never needs, and **only the last line decides what counts as the answer**. Students lose points by **stopping at the quotient when the question wanted the remainder**, by reporting a total when it asked how many more, and by using every number simply because it was printed.
This theme trains students to **read the last line first**, to **name the exact quantity before computing**, and to **cross out facts the question never needs**. Type A targets the quantity asked; Type B turns phrases such as "less than" and "of" into operations in the right order; Type C follows defined operations and multi-step setups one rule at a time.
CORE PRINCIPLE ANSWER THE QUESTION ASKED
Solve for the quantity the last line names.
A QR problem may ask for a number, an expression, or a relationship. Identify exactly what is requested before computing, then check that your answer addresses it.
Key Terms, Definitions & Examples
Lock in these terms and the core idea before you start the Type A, Type B, and Type C pages.
- **Target quantity** — The one number a question asks for; in a how-many-more question the target is a difference, not either total.
- **Extra information** — A given fact the answer never needs, such as a ticket price stated in a problem that only counts tickets sold.
- **Translation** — Rewriting words as symbols in the order the meaning requires; 6 less than 3n is 3n − 6, never 6 − 3n.
- **Defined operation** — A new symbol given by a rule; apply the rule exactly as written, then treat the result like any other number.
- **Intermediate value** — A number you must find on the way to the answer but that the question wants 4x.
- **One clean equation** — A single equation carrying every [illegible], so one solve replaces guesswork; 3c

Part 6 · p. 210–

3


TYPE A Order of Operations & Signed Numbers
Read the whole expression first, then compute in the fixed order.
EXAM TRENDS
This type checks whether you can **hold grouping symbols, exponents, and signs in the right order** while working quickly and without a calculator. The numbers stay small; the structure does the damage. Watch the exponent trap above everything else: -5^2 is -25 because only the 5 is squared, while $(-5)^2$ is 25.
CORE CONCEPT Powers Before Signs
A minus sign in front of a power is a multiplication by −1, and it **waits until the power is finished**. **Parentheses are the only thing** that makes a sign part of the base. Read every power twice before you touch it.

Expression	Read it as	Value
-4^2	the opposite of 4^2	−16
$(-4)^2$	$(-4)(-4)$	16
$(-2)^3$	$(-2)(-2)(-2)$	−8
$-(-2)^3$	the opposite of $(-2)^3$	8
$(-1)^{\text{even}}$	an odd power of −1	−1

EXAM-STYLE PROBLEM
What is the value of $-3^2 + (-4)(-2) - (6 - 10)$?
(A) −5 (B) 3 (C) 13 (D) 21
- Worked Solution
- Fast work: Powers first: $-3^2 = -9$, not 9. Then $(-4)(-2) = 8$ and $-(6 - 10) = +4$, so the total is $-9 + 8 + 4$. Answer: B.
- Trap check: (D) squares the negative to get 9, and (A) subtracts 4 instead of adding it after the parentheses turn negative.

STUDENT ACTION Circle every minus sign before you compute, and decide what each one is attached to.

Three per Theme · 75 in

1


DIAGNOSTIC TEST STUDY-THEME INDEX
All 25 Themes are sampled. Tally the questions you missed under each one.

Theme	Title	Tested in
01	Integers, Order & Absolute Value	Q1 Q22
02	Fractions, Decimals & Percents	Q2 Q23 Q27
03	Factors, Multiples & Primes	Q3
04	Exponents, Roots, Scientific Notation & Matrices	Q4 Q28
05	Expressions & Linear Equations	Q5 Q26
06	Inequalities & Absolute Value Equations	Q6
07	Ratios, Rates & Proportions	Q7 Q21
08	Linear Functions & Graphs	Q8
09	Quadratics, Systems & Rational Expressions	Q9 Q24
10	Sequences, Functions & Exponential Growth	Q10
11	Angles, Lines & Triangles	Q11
12	Polygons & Circles	Q12
13	Coordinate Geometry & Transformations	Q13
14	Similarity, Pythagorean Theorem & Trigonometric Ratios	Q14
15	Units, Conversion & Rates	Q15
16	Perimeter, Area, Surface Area & Volume	Q16 Q29
17	Statistics: Mean, Median, Mode & Range	Q17 Q25
18	Graphs, Tables & Data Displays	Q18
19	Probability & Expected Value	Q19 Q30
20	Counting, Permutations & Combinations	Q20
21	What Is the Question Asking?	Q21 Q26
22	Estimate, Reason, Then Compute	Q22 Q23
23	Choose a Method: Algebra, Plug-In, or Picture	Q24 Q25
24	Quantitative Comparison I — Numbers & Algebra	Q27 Q28
25	Quantitative Comparison II —	

p. 14–22 · 30

Quantitative Reasoning Themes 21–25

Three Themes on the reasoning habits behind word problems — What is the question asking? · Estimate, reason, then compute · Choose a method — and two

→ **The section where the thinking is heavy gets its own training, not a footnote.**

Type A · B · C pages — Exam-Style Problem + Worked Solution

Exam Trends, a Core Concept, one Exam-Style Problem, a Worked Solution that pairs Fast Work with a Trap Check, and a one-line Student Action.

→ **The shortcut — and the mistake that shortcut invites — learned together, seventy-five times.**

Diagnostic Test + Study-Theme Index

Thirty questions that sample every content Theme and every reasoning Theme, then an index that maps each miss to its Theme — Theme 07 · Theme 21 and

→ **A raw score becomes a study order for both sections at once.**

THE LEARNING FLOW

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
Diagnostic	20 Theme Cycles	10 Mini Rounds	5 QR Themes	2 Practice Sets

Every corner, and why it is there

1 **Diagnostic Test + Study-Theme Index**
A raw score becomes a study order for both sections at onc...

2 **Theme Opener — Exam-Pattern Focus & Key Terms**
Only as much theory as the next problem actually needs — in one b...

3 **Type A · B · C pages — Exam-Style Problem + Worked So...**
The shortcut — and the mistake that shortcut invites — learned to...

4 **Mixed Practice + Top-Score Challenge Set**
Control first, then transfer, then pressure — in that ord...

5 **Mini Practice Rounds 01–10**
Transfer is checked early and often, in both question format...

6 **Quantitative Reasoning Themes 21–25**
The section where the thinking is heavy gets its own training, not a f...

7 **Full-Length Practice Sets 01–02**
Both sections at the real length and pace, 84 questions each tim...

8 **Answer Key & Explanations — Theme by Theme**
Written for repair, not just scoring: name the type, name the error, l...

4-Week Standard Plan

Week 1	Diagnostic + Themes 01–05
Week 2	Themes 06–11
Week 3	Themes 12–17
Week 4	Themes 18–25 + Practice Sets 01–02 + review

2-Week Intensive Plan

Day 1	Diagnostic + study map
Days 2–9	Two Themes per day · Themes 01–16
Days 10–12	Themes 17–25 + ★★★★ review
Days 13–14	Practice Sets 01–02 + wrong-answer repair

FREE BOOK EXTRAS

Term Lists & Tests

Key Terms of every Theme · 148 terms in 8 Units · a Term List and two tests for each

8 UNITS **148** TERMS **44** PDF PAGES

richieprep.com/b/i1e1

A 30-MINUTE SESSION

- **0–5** Read the Core Concepts box and one Exam-Style Problem.
- **5–20** Complete 6–8 selected questions under time.
- **20–30** Repair the misses — name the trap, then redo.

Start free · Free ISEE Half-Length Test — 81 questions + essay, four timed sections, essay last. Marked the moment you submit; every question explained. No account, no card.

START HERE **Take the Diagnostic, map each miss to its Theme, and start with your weakest Theme.**

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