

10 Illinois IAR Grade 7 Math Practice Tests

The Ultimate Test Prep Collection with Answer Explanations

Dr. A. Nazari

Copyright © 2026 Dr. A. Nazari

Published by View Math Education

ViewMath.com

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the author, except in the case of brief quotations embodied in critical reviews and certain other noncommercial uses permitted by copyright law, including Section 107 or 108 of the 1976 United States Copyright Act.

The information in this book is distributed on an “as is” basis, without warranty. While every precaution has been taken in the preparation of this work, neither the author nor the publisher shall have any liability to any person or entity with respect to any loss or damage caused or alleged to be caused directly or indirectly by the information contained in this book.

Copyright © 2026

10 Practice Tests

10 tests × full coverage

 Grade 7 Math — Engineered for Mastery 

Welcome to **The Architect's Workshop**.

Ten practice tests. Ten floors of a tower you're about to build. Each test lays another level of understanding — from foundation to capstone.

 **Foundation (Tests 1–3):** Learn the blueprints

 **Framework (Tests 4–6):** Build structural strength

 **Finishing (Tests 7–9):** Refine under pressure

 **Capstone (Test 10):** The final inspection

Precision. Practice. Perfection.

“ Every great structure
is built one floor at a time.
Ten levels of practice makes
your math rock-solid. ”



The Architectural Plan

A 4-phase construction plan for complete mastery

Phase I: Foundation (Tests 1–3)

Untimed. Explore the test format and question types. Read every answer explanation after each test.

Goal: understand the blueprint before you build.



Phase II: Framework (Tests 4–6)

Add a timer (70 minutes). Focus on the topics that gave you trouble in Phase I. Practice showing complete work and labeling units. Goal: build structural strength.



Phase III: Finishing (Tests 7–9)

Full timed conditions (60 minutes). Simulate the real exam. Review only the questions you missed — don't re-study what you already know. Goal: refine under real pressure.



Phase IV: Capstone (Test 10)

Your final inspection. Full exam conditions. This is the capstone — compare with Test 1 and measure your entire growth arc. Goal: prove your mastery.

Blueprint Specifications

 **Multiple Choice** — select the single best answer

 **Short Answer** — show your process

 **Multi-Select** — choose ALL that apply

 **Open Response** — explain and justify

Engineering Principles

Precision techniques for building every solution

The D.R.A.F.T. Method

- D Define** What exactly is the question asking? Write it in your own words.
- R Retrieve** Pull out given information. List numbers, units, and relationships.
- A Assemble** Choose the right formula or strategy. Set up the equation or proportion.
- F Figure** Compute step by step. Show every operation. Label units.
- T Test** Does the answer make sense? Re-read the question. Verify the units.

Seven Precision Rules

1. **Read twice, solve once.** The first read gives context; the second reveals what to compute.
2. **Annotate the problem.** Circle key information and underline the question.
3. **Estimate before calculating.** A quick mental approximation catches major errors.
4. **Set up the equation.** Write down the formula and plug in the numbers.
5. **Track your signs.** Rational number operations are the #1 error source in Grade 7.
6. **Eliminate unreasonable answers.** Check if the answer makes sense in the context.
7. **Never submit blanks.** On open response, even a partial setup can earn credit.

Timing Blueprint

Tests 1–3: **Untimed** (learn the blueprints) > Tests 4–6: **70 min** (build speed) > Tests 7–10: **60 min** (exam conditions)



“Every great structure starts with a solid plan. Study the blueprints, learn from each test, and build something extraordinary.”

PREVIEW



Find more at
[ViewMath.com/Grade7](https://www.viewmath.com/Grade7)





Math Reference Sheet

You may use this page during your practice tests!

Symbol	Name	What It Means
$()$	Parentheses	Do this part first. $(3 + 4) \times 2 = 14$
10^3	Exponent	Multiply the base by itself that many times. $10^3 = 1,000$
$\frac{a}{b}$	Fraction	a parts out of b equal parts; also means $a \div b$.
$\frac{7}{3}$	Improper Fraction	Numerator $\geq$ denominator. $\frac{7}{3} = 2\frac{1}{3}$
0.45	Decimal	A number with a decimal point. $0.45 = \frac{45}{100}$
$> < =$	Comparison	Greater than, less than, equal to. $0.5 > 0.35$
$(3,5)$	Ordered Pair	A point on the coordinate plane: (x, y) .

Key Formulas

- **Volume of a rectangular prism:**

$$V = l \times w \times h$$

- **Order of operations:**

Parentheses $\rightarrow$ Exponents $\rightarrow$ Multiply/Divide
 $\rightarrow$ Add/Subtract

- **Powers of 10:**

$$10^1 = 10 \quad 10^2 = 100$$

$$10^3 = 1,000 \quad 10^4 = 10,000$$

- **Fraction as division:**

$$\frac{a}{b} = a \div b$$

Place Value Chart

Millions	1,000,000
Hundred-Thousands	100,000
Ten-Thousands	10,000
Thousands	1,000
Hundreds	100
Tens	10
Ones	1

Decimals

Tenths	0.1
Hundredths	0.01
Thousandths	0.001

Each place is $10\times$ the place to its right, and $\frac{1}{10}$ of the place to its left.

Key Math Vocabulary

- **Sum** — the result of addition
- **Difference** — the result of subtraction
- **Product** — the result of multiplication
- **Quotient** — the result of division
- **Remainder** — what's left over after dividing
- **Factor** — a number you multiply
- **Expression** — numbers and operations without =
- **Equation** — a math sentence with =
- **Numerator** — the top number of a fraction
- **Denominator** — the bottom number of a fraction
- **Mixed number** — a whole number + a fraction
- **Equivalent fractions** — fractions with equal value
- **Decimal** — a number written with a decimal point
- **Volume** — the space inside a 3D shape
- **Coordinate plane** — a grid with x and y axes
- **Ordered pair** — (x, y) location on the plane

Word Problem Clue Words

- **Add (+)**: total, altogether, combined, sum, increase, more than
- **Subtract (−)**: difference, how many more, fewer, remain, decrease, left
- **Multiply (×)**: each, every, groups of, times, product, per, of (with fractions)
- **Divide (÷)**: share equally, split, each group, how many groups, quotient, per



Get Online



Find more at
ViewMath.com/Grade7



Contents



<i>Practice Test 1</i>	<i>1</i>
<i>Answer Key & Explanations</i>	<i>8</i>

PREVIEW



Find more at
[ViewMath.com/Grade7](https://www.viewmath.com/Grade7)



PREVIEW

PRACTICE TEST

1

Practice Test 1

 10 Questions

Before You Start

- ✓ *Read each question carefully before choosing your answer.*
- ✓ *Show your work on scratch paper when you need to.*
- ✓ *Skip hard questions and come back to them later.*
- ✓ *Check your answers when you're done.*
- ✓ *Take your time — there's no rush!*

★ *You've Got This!* ★

Do your best and show what you know!



1. The table shows a proportional relationship. Find k and the missing value.

x	y
3	7.5
?	15
10	25

Your Answer:

2. Two proportional lines are graphed below. Which statement is correct?



- (A) Line Q has the greater unit rate because it is longer
- (B) Line P has the greater unit rate because it is steeper
- (C) Both lines have the same unit rate
- (D) Line Q has the greater unit rate because $6 > 5$



Get Online



Find more at
[ViewMath.com/Grade7](https://www.viewmath.com/Grade7)



3. The graph below compares the rates of two workers packaging boxes. Which worker is faster, and by how many boxes per hour?



- (A) Worker A, by 3 boxes/hr
(B) Worker B, by 3 boxes/hr
(C) Worker A, by 15 boxes/hr
(D) They work at the same rate
4. A store has 300 items in stock. If 60% are on sale, how many items are on sale?

- (A) 120
(B) 150
(C) 180
(D) 200



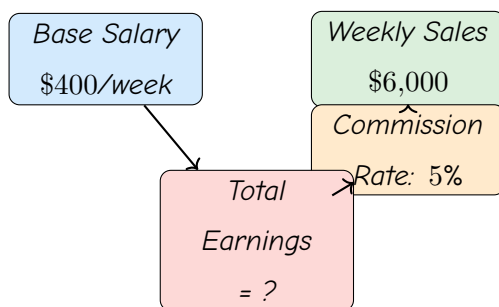
Get Online



Find more at
[ViewMath.com/Grade7](https://www.viewmath.com/Grade7)



5. The diagram shows how a salesperson's earnings are calculated. What are the total earnings?

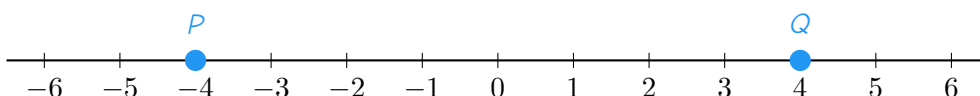


- (A) \$430 (B) \$700
(C) \$6,400 (D) \$6,700

6. A jogger estimated running 5 miles but actually ran 4.8 miles. What is the percent error (rounded to the nearest tenth)?

Your Answer:

7. The number line below shows two points. Which statement is correct?



- (A) P and Q are the same number (B) P and Q are opposites
(C) $|P| > |Q|$ (D) $P > Q$

8. What is $0 + (-7)$?

- (A) 7 (B) 0
(C) -7 (D) -14



Get Online



Find more at
ViewMath.com/Grade7



9. Evaluate $\frac{x^2-1}{4}$ when $x = 5$.

Your Answer:

10. Simplify $\frac{1}{2}x + \frac{3}{4}x - 2$.



Your Answer:



Get Online



Find more at
[ViewMath.com/Grade7](https://www.viewmath.com/Grade7)



ViewMath.com



★ *End of Practice Test 1* ★

Great job finishing the test!

My Score

I got _____ out of 10 questions right.

*Check your answers in the **Answer Key** at the back of the book.*

 *Review any questions you missed. That's how we learn!*

Answer Key & Explanations



Answer Key

First try each test on your own, then check your work here.



Practice Test 1 — Answer Key

1 $k = 2.5$; missing $x = 6$

2 B

3 A

4 C

5 B

6 $\approx 4.2\%$

7 B

8 C

9 6

10 $\frac{5}{4}x - 2$ or $1\frac{1}{4}x - 2$

💡 Time to Learn! 💡

Review the explanations below, **especially for the questions you missed**.

Understanding why each answer is correct builds stronger problem-solving skills.

Tip: Circle any questions you got wrong, then read their explanation carefully.



Practice Test 1 — Detailed Explanations

1 $k = \frac{7.5}{3} = 2.5$. For the missing row: $15 = 2.5x$ so $x = 15 \div 2.5 = 6$.

2 Line P: $k = \frac{7}{5} = 1.4$. Line Q: $k = \frac{6}{6} = 1$. Line P is steeper and has the greater unit rate.



Find more at
[ViewMath.com/Grade7](https://www.viewmath.com/Grade7)



3 Worker A: $60 \div 5 = 12$ boxes/hr. Worker B: $45 \div 5 = 9$ boxes/hr. Worker A is faster by $12 - 9 = 3$ boxes/hr.

4 $60\% = 0.60$. Multiply: $0.60 \times 300 = 180$ items.

5 Commission: $6,000 \times 0.05 = \$300$. Total: $400 + 300 = \$700$.

6 $\frac{|5-4.8|}{4.8} \times 100 = \frac{0.2}{4.8} \times 100 \approx 4.17 \approx 4.2\%$.

7 Point P is at -4 and Q is at 4 . They are the same distance from 0 on opposite sides, so they are opposites.

8 Adding 0 to any number gives that number: $0 + (-7) = -7$.

9 Substitute: $\frac{5^2-1}{4} = \frac{25-1}{4} = \frac{24}{4} = 6$.

10 Find a common denominator: $\frac{2}{4}x + \frac{3}{4}x = \frac{5}{4}x$. The constant stays: $\frac{5}{4}x - 2$.



Well done checking your answers!

Keep practicing to strengthen your skills.



Get Online



Find more at
[ViewMath.com/Grade7](https://www.viewmath.com/Grade7)



ViewMath.com



THANK YOU

Enjoyed This Preview?

Get the Full Book!

This preview shows just a small sample of what's inside.

The complete book includes:

- ✓ *All chapters and topics*
- ✓ *Hundreds of practice problems*
- ✓ *Complete answer key with explanations*
- ✓ *Colorful visuals and step-by-step examples*
- ✓ *Reference sheets and progress trackers*

Available on Amazon and Teachers Pay Teachers

 Visit us at [ViewMath.com](https://www.viewmath.com) for free resources and more books!