

# 8

FULL-LENGTH

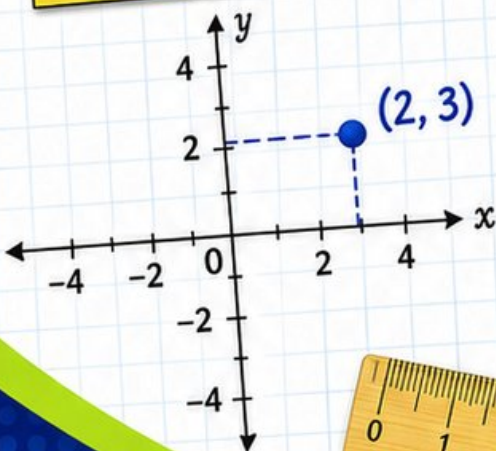
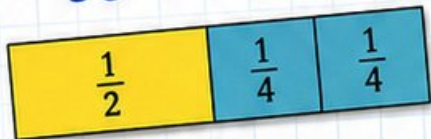
# Illinois IAR

## GRADE 5

# MATH PRACTICE TESTS

Mixed Practice Questions with Answer Key  
for Students, Parents, and Teachers

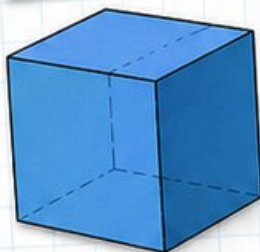
$$36 \div 4 = 9$$



$$2.4 \times 7 = 16.8$$

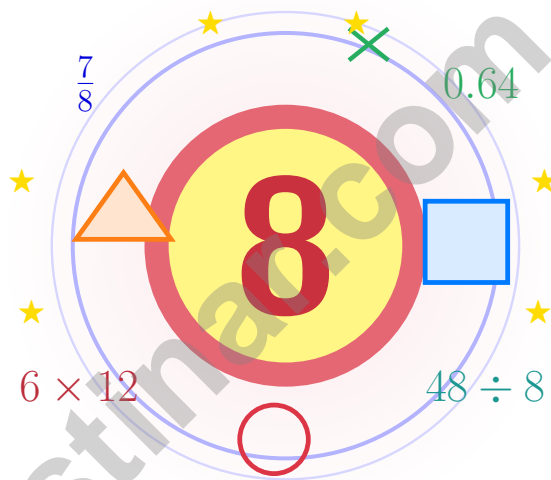
$$7 \times (12 - 5) = 49$$

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



# 8 Illinois IAR Grade 5 Math Practice Tests

*This book is here to help you practice, reflect, and rise across eight tests*



**Eight full tests, a focused quick review, and helpful support that turns Grade 5 practice in The Prairie State into steady, confident growth from page one to the final check.**

**Jay Daie and Reza Nazari**



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# Open the Trail, Illinois

Seven practice tests woven into one calm routine

## Welcome Letter for Illinois Math Trail Crew

This practice book is your steady companion for eight tests, not a place to be perfect. Math is like a tower in Chicago: every floor stands on the one below, so the careful first steps lift the whole building.

Use these eight tests like stepping-stones. Take one test at a time, check your answers honestly, and notice which skills need more attention. Small improvements add up across seven rounds.

### Look

Look at the problem like a detective looks at a clue.

### Test

Test your idea with one careful step at a time.

### Grow

Grow stronger by reviewing exactly what tripped you up.

**A strong habit for Illinois mathematicians:** read carefully, estimate when it helps, show your steps, and keep going even when a question feels tricky. That is how steady math confidence is built.

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# A Map of the Pages

A simple routine that turns practice into progress

## Step 1: Read

**Read the quick review pages first.**  
Spend a few minutes waking up your memory before the test begins.

## Step 2: Try

**Try one full test with full attention.**  
Work in a calm spot and focus on careful thinking before speed.

## Step 3: Reflect

**Reflect on which skills want more sunlight.**  
Circle missed questions and notice which topics keep showing up.

## Step 4: Lift

**Lift those skills before the next test.**  
Read the explanation, repair the work, and bring that lesson into the next test.



# Table of Contents

★ Practice Test 1	_____	23
★ Practice Test 2	_____	39
★ Practice Test 3	_____	53
★ Practice Test 4	_____	67
★ Practice Test 5	_____	83
★ Practice Test 6	_____	98
★ Practice Test 7	_____	115
★ Practice Test 8	_____	130
<b>Practice Test Answer Keys</b>	_____	<b>144</b>
<b>Practice Test Answers and Explanations</b>	_____	<b>149</b>

## Grade 5 Mathematics Reference Materials

### PERIMETER AND AREA

Perimeter of Rectangle  $P = 2l + 2w$  or  $P = 2(l + w)$

Area of Rectangle  $A = l \times w$

Area of Triangle  $A = \frac{1}{2} \times b \times h$

Volume of Rectangular Prism  $V = l \times w \times h$

### LENGTH

#### Customary

1 foot (ft) = 12 inches (in.)

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#### Metric

1 meter (m) = 100 centimeters (cm)

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### CAPACITY

#### Customary

1 cup (c) = 8 fluid ounces (fl oz)

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### TIME

1 minute (min) = 60 seconds (sec)    1 week = 7 days

1 hour (hr) = 60 minutes (min)    1 year = 12 months

1 day = 24 hours (hr)    1 year = 52 weeks



- 1) A place-value chart for adding two decimals:

Ones	Tenths	Hundredths
5	3	8
+2	+4	+6
7	8	4

Is this correct? If not, what should the ones digit be?

- A. Yes, it is correct.
- B. No, ones should be 6.
- C. No, ones should be 8.
- D. No, ones should be 9.
- 2) A rectangular prism has length 7 m, width 4 m, height 3 m. Find the volume.
- A.  $84 \text{ m}^3$
- B.  $14 \text{ m}^3$
- C.  $28 \text{ m}^3$
- D.  $21 \text{ m}^3$
- 3) A band plays  $\frac{1}{4}$  of a song. The band wants to play it in 5 equal segments. How long is each segment relative to the whole song?
- A.  $\frac{1}{20}$  of the song
- B.  $\frac{5}{4}$  of the song
- C.  $\frac{1}{9}$  of the song
- D.  $\frac{1}{1}$  of the song
- 4) A painting studio is shaped like a rectangular prism. It measures 10 m long, 8 m wide, and 4 m tall. What is the volume of the studio?
- A. 72 cubic meters
- B. 144 cubic meters
- C. 320 cubic meters
- D. 544 cubic meters



- 5) Which expression represents adding 7 to  $4 \times 9$ ?
- A.  $7 + 4 + 9$                        C.  $7 \times (4 + 9)$   
 B.  $4 \times 9 + 7$                        D.  $4 \times (9 + 7)$
- 6) A marathon is about 42 kilometers. How many meters is that?
- A. 4.2 m                                   C. 4,200 m  
 B. 420 m                                   D. 42,000 m
- 7) To build a rectangular prism with volume 30, which pair of dimensions will NOT work?
- A. Length 5, width 3, height 2                       C. Length 10, width 3, height 1  
 B. Length 6, width 6, height 1                       D. Length 15, width 2, height 1
- 8) Pattern: 200, 180, 160, ... Which is the 8th term?
- A. 80     C. 40  
 B. 50     D. 60
- 9) Four swimmers' lap times in seconds: 8.12, 8.21, 8.02, 8.20. Order from fastest to slowest.
- A. 8.02, 8.12, 8.20, 8.21                       C. 8.21, 8.20, 8.12, 8.02  
 B. 8.02, 8.12, 8.21, 8.20                       D. 8.12, 8.02, 8.21, 8.20
- 10) Evaluate:  $36 \div (4 + 5) + 6$
- A. 4     C. 10  
 B. 8     D. 15
- 11) When you multiply 3.7 by  $10^2$ , which digit moves to the hundreds place?
- A. 7     C. 0  
 B. 3     D. 2



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1) Estimate:  $9\frac{3}{5} - 4\frac{2}{9}$ .

A. 4

B. 5

C. 6

D. 7

2) Add:  $\frac{1}{6} + \frac{1}{3}$ . Write the answer in simplest form.

A.  $\frac{1}{2}$

B.  $\frac{2}{9}$

C.  $\frac{1}{3}$

D.  $\frac{5}{6}$

3) A path is divided into sections that are each  $\frac{1}{2}$  mile long. Which division equation finds the number of sections in an 11-mile path?

A.  $\frac{1}{2} \div 11 = n$

B.  $11 \times \frac{1}{2} = n$

C.  $11 \div \frac{1}{2} = n$

D.  $11 + \frac{1}{2} = n$

4) At a printing company, 2,288 booklets must be packed into boxes of 52 booklets. What is the quotient and remainder?

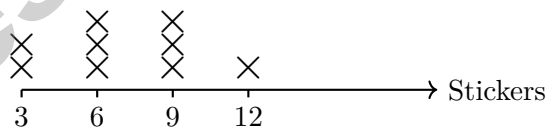
A. 43 R52

B. 44 R0

C. 45 R8

D. 46 R16

5) The line plot shows the number of campaign stickers collected by students in a class election:



How many students are represented in the line plot?

A. 9 students

B. 10 students

C. 11 students

D. 12 students



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1) A recipe calls for 750 milliliters of milk. How many liters is that?

A. 0.75 L

C. 75 L

B. 7.5 L

D. 750 L

2) Which of these points lies on the y-axis?

A. (4, 2)

C. (3, 0)

B. (5, 5)

D. (0, 7)

3) What is the value of  $[(8 + 4) \div 2] \times 3$ ?

A. 6

C. 12

B. 9

D. 18

4) Find  $7 \times 10^2$ .

*Record your answer in the space provided.*

5) Which phrase represents  $5 + 2 \times 6$ ?

A. Five more than the product of 2 and 6

B. The product of 5, 2, and 6

C. 2 less than the sum of 5 and 6

D. 6 times the sum of 5 and 2



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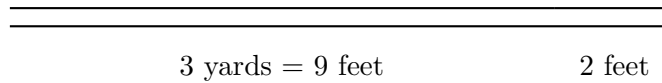
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- 1) A fence is 3 yards and 2 feet long. How many feet total?



- A. 11 feet                       C. 12 feet  
 B. 9 feet                       D. 10 feet
- 2) Which expression has a value of 24?
- A.  $15 - 7 \times 3$                        C.  $(15 - 7) \times 3$   
 B.  $(15 - 5) \times 3$                        D.  $(15 - 9) \times 3$
- 3) A jeweler divides 26.3 ounces of gold equally among 100 customers. How much does each customer get?

- A. 2630 oz                       C. 0.263 oz  
 B. 263 oz                       D. 2.63 oz

- 4) Find the difference:  $\frac{7}{10} - \frac{1}{2}$ .

*Record your answer in the space provided.*

- 5) Find:  $\frac{1}{4} \div 2$ .

*Record your answer in the space provided.*



## Practice Test Answer Keys

### How to use this section:

1. check your answer
2. circle missed questions
3. rework them before reading the explanation

**Good correction habits build strong scores.**

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## Practice Test Answers and Explanations

### Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** (5.NBT.B.7) Hundredths:  $8 + 6 = 14$  (regroup 1 tenth); tenths:  $3 + 4 + 1 = 8$ ; ones:  $5 + 2 = 7$ . The chart shows 7 ones, which is correct.
- 2) **Choice A is correct.** (5.MD.C.5a)  $V = l \times w \times h = 7 \times 4 \times 3 = 84 \text{ m}^3$ .
- 3) **Choice A is correct.** (5.NF.B.7c)  $\frac{1}{4} \div 5 = \frac{1}{4} \times \frac{1}{5} = \frac{1}{20}$ .
- 4) **Choice C is correct.** (5.MD.C.3b) Volume measures the space inside the studio. Multiply the three dimensions:  $10 \times 8 \times 4 = 320$  cubic meters.
- 5) **Choice B is correct.** (5.OA.A.2) Start with the product  $4 \times 9$ . Adding 7 to that product gives  $4 \times 9 + 7$ .
- 6) **Choice D is correct.** (5.OA.A.2)  $1 \text{ km} = 1,000 \text{ m}$ . Multiply:  $42 \times 1000 = 42,000 \text{ m}$ .
- 7) **Choice B is correct.** (5.MD.A.1) A:  $5 \times 3 \times 2 = 30$  (yes); B:  $6 \times 6 \times 1 = 36$  (no); C:  $10 \times 3 \times 1 = 30$  (yes); D:  $15 \times 2 \times 1 = 30$  (yes).
- 8) **Choice D is correct.** (5.OA.B.3) Subtract 20; 8th term:  $200 - 7 \times 20 = 60$ .
- 9) **Choice A is correct.** (5.OA.B.3) Fastest = smallest time.  $8.02 < 8.12 < 8.20 = 8.20 < 8.21$  (note:  $8.20 = 8.2$ , but  $8.21 \neq 8.20$ ).
- 10) **Choice C is correct.** (5.OA.A.1) Parentheses come first:  $4 + 5 = 9$ . Then  $36 \div 9 = 4$ , and  $4 + 6 = 10$ .
- 11) **Choice B is correct.** (5.OA.A.1)  $3.7 \times 10^2 = 370$ . The 3 moves to the hundreds place.
- 12) **Choice A is correct.** (5.NBT.A.2)  $\frac{6}{5} > 1 > \frac{5}{6}$ , so the first product (24) is greater than the second product (about 16.67).
- 13) **The correct answer is 24.** (5.OA.B.3) Multiply the Pattern A value by 6:  $6 \times 4 = 24$ .
- 14) **Choice C is correct.** (5.OA.B.3) LCD = 20.  $\frac{7}{10} = \frac{14}{20}$ ;  $\frac{1}{4} = \frac{5}{20}$ .  $\frac{14}{20} - \frac{5}{20} = \frac{9}{20}$ .
- 15) **Choice C is correct.** (5.G.A.2) Both points have the same x-coordinate (4), so movement is only vertical. From  $y = 3$  to  $y = 9$  is going up, which is north.
- 16) **Choice B is correct.** (5.NBT.A.3a) The 5 is in the tenths place, so  $1.5 = 1 + 0.5$ .
- 17) **Choice B is correct.** (5.NBT.A.3a)  $9.2 \div 4 = 2.3$ . Since  $2 < 2.3 < 3$ , the quotient lies between 2 and 3 on the number line.
- 18) **Choices A, B are correct.** (5.NBT.A.2) Multiplying 23 by 10 gives 230, and multiplying by 100 gives 2,300. C is false because the number of digits does not double, and D is false because 23,000 ends with three zeros.
- 19) **Choice A is correct.** (5.NF.B.5b) Grid:  $5 \times 6 = 30$  cells. Shaded (3 of 5 columns, 4 of 6 rows):  $3 \times 4 = 12$  cells. Answer:  $\frac{12}{30} = \frac{2}{5}$ .
- 20) **Choice C is correct.** (5.NF.B.7c)  $5 \div \frac{1}{4} = 5 \times 4 = 20$ . It takes 20 jumps of  $\frac{1}{4}$  to reach 5.
- 21) **The correct answer is  $\frac{13}{24}$ .** (5.NF.A.2) The least common denominator of 8 and 6 is 24. Rewrite  $\frac{3}{8}$  as  $\frac{9}{24}$  and  $\frac{1}{6}$  as  $\frac{4}{24}$ . Then  $\frac{9}{24} + \frac{4}{24} = \frac{13}{24}$ .
- 22) **Choice A is correct.** (5.NF.A.2) Convert to sixths:  $4\frac{4}{6} + 2\frac{1}{6} = 6\frac{5}{6}$ .
- 23) **Choice C is correct.** (5.NF.A.1) Each foot has 12 inches.  $15 \times 12 = 180$ , so 15 feet equals 180 inches.
- 24) **Choice D is correct.** (5.OA.A.2) The product of 6 and 9 is  $6 \times 9$ . The phrase "8 less than" means subtract 8 from that product.
- 25) **Choice D is correct.** (5.NBT.B.5) Multiply:  $39 \times 28 = 39 \times (30 - 2) = (39 \times 30) - (39 \times 2) = 1,170 - 78 = 1,092$  seats.
- 26) **Choice D is correct.** (5.NF.B.6) Area =  $\frac{2}{3} \times \frac{1}{2} = \frac{2}{6}$ , which simplifies to  $\frac{1}{3} \text{ m}^2$ .
- 27) **Choice B is correct.** (5.G.A.2) Check: (3, 9) has second coordinate  $3 \times 3 = 9$ . The other points do not have a second coordinate that is 3 times the first.
- 28) **The correct answer is 700,000.** (5.NBT.A.2) Multiplying by  $10^5 = 100,000$  attaches five zeros to the 7: 700,000.
- 29) **Choice A is correct.** (5.NBT.A.2) All four sides are equal:  $5 - 1 = 4$  units. All four angles are right angles. This is a square.



### Captain's Log—Voyage Complete

#### First Mate, Well Done!

◇ You sailed through 8 practice tests with steady hands and a sharp eye. The waters got rough sometimes, but you kept your course. That's what good sailors do. Now the harbor (test day) is in sight, and you are ready to dock with confidence. ◇

★ **Captain's wisdom:** a good sailor doesn't fight the wind—they read it and adjust. On a test, the same thing is true. When a problem feels tricky, don't panic. Read it again. Try a new strategy. Adjust the sails of your thinking. ★

#### Captain's Skills Inventory

- **Steady Steering:** EXCELLENT! You stay on course even when problems get tough.
- **Wind Reading:** STRONG! You can spot what a problem is really asking.
- **Crew Spirit:** HIGH! You believe in your own ability.
- **Harbor Approach:** READY! You know how to finish a test calmly.

**Final captain's note:** the best voyages combine planning with courage. You have both. Trust the chart you built through these 8 tests. Trust your hands on the wheel. Then sail confidently into test day.

If you'd like to share your experience or have questions, please email me at [reza@testinar.com](mailto:reza@testinar.com). I'd love to hear from you!

**Reza Nazari & Jay Daie**

Your Math Captain (Smooth Sailing Ahead)

$45 \div 5 = ?$

# PRACTICE TODAY.

$\frac{3}{5} + \frac{1}{10} = ?$



## ACHIEVE TOMORROW!



$3^2 + 4^2 = 25$

This book includes **8** full-length **Grade 5** math practice tests to help students master essential skills, build confidence, and achieve success. Each test is carefully designed to reflect real math standards and cover a variety of question types with detailed answer explanations.

$7x - 4 = 17$

$1\frac{1}{2} + 2\frac{1}{3} = ?$

## 8 FULL-LENGTH MATH PRACTICE TESTS



### REALISTIC PRACTICE

Tests mirror Grade 5 math standards and real assessment formats.



### ANSWER KEY INCLUDED

Detailed answer explanations help students understand and learn.



### BUILD CONFIDENCE & SKILLS

Strengthens problem-solving abilities and reinforces key math concepts.



### IMPROVE & TRACK PROGRESS

Identify strengths and focus on areas that need improvement.



### ACHIEVE SUCCESS

Boosts test readiness and helps students achieve their best results.

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- ✓ Algebraic Thinking
- ✓ Geometry
- ✓ Measurement & Data
- ✓ Number Patterns
- ✓ Word Problems
- ✓ Ratio & Proportion
- ✓ Perimeter, Area & Volume
- ✓ Graphing & Data Analysis

...and More!



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