

10 West Virginia WVGSA Grade 8 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

🏆 Grade 8 Mathematics 🏆

10 tests × full coverage

Welcome!

*This book contains **10 full-length practice tests** — the most comprehensive preparation you can get for your Grade 8 math assessment. Each test covers all six topics:*

📖 Irrational Numbers 📖 Powers & Scientific Notation

📖 Linear Equations 📖 Functions

📖 Geometry 📖 Data & Relationships

Ten tests give you the practice needed to walk into the real test feeling fully prepared.

Thorough preparation leads to outstanding results.

4

“ Ten full tests! By the time you finish, there won't be any surprises on test day. ”



1

How to Use This Book

A complete 10-test preparation program

What's Inside

- **10 Full-Length Practice Tests** — each covers all 6 chapters of Grade 8 math: irrational numbers, exponents & scientific notation, linear equations, functions, geometry, and data analysis.
- **Detailed Answer Explanations** — every question includes a step-by-step solution so you learn from every mistake.
- **Formula Reference Sheet** — all the key Grade 8 formulas you need, organized and ready for quick review.
- **Test Tracker** — log your scores across all 10 tests and monitor your progress from start to finish.

Your 10-Test Training Plan

★ PHASE 1: Foundation (Tests 1–3)

Untimed or soft-timed. Focus on understanding the format, identifying strengths and weaknesses, and building good study habits.

★★ PHASE 2: Building Skills (Tests 4–7)

Timed (70 minutes each). Work on pacing, accuracy, and showing complete solutions. Review weak topics between tests.

★★★ PHASE 3: Test-Day Ready (Tests 8–10)

Full test conditions: strict timing, quiet space, no notes. Compare scores with your early tests to see your growth.

Schedule: Take one test every 3–4 days, or one per week. Use study days between tests to review.

 Types of Questions

 **Multiple Choice:** Four options — work the problem first, then match. Eliminate obviously wrong answers to narrow your choices.

 **Short Answer & Constructed Response:** Show every step: equations, substitutions, simplifications. Partial credit rewards correct reasoning even if the final answer is off.

 **Graphing & Data Analysis:** Plot points, draw lines, interpret graphs. Label axes clearly.



Tip: Ten tests is a full preparation program. Don't rush. The key is what you do between tests — study, review, and understand your mistakes before moving forward.



Find more at
[ViewMath.com/Grade8](https://www.viewmath.com/Grade8)



💡 *Test-Taking Tips* 💡

Your complete test-day toolkit

🕒 *Before the Test*

- *Review your notes from the previous test — focus on your weak topics*
- *Set up a quiet, clean workspace with all your materials ready*
- *Start with a positive mindset: you've prepared for this*

✎ *During the Test*

- *Read each problem fully before calculating anything*
- *Write the formula or set up the equation first, then substitute values*
- *Show all your work — every step, every operation*
- *If stuck for more than 2 minutes, mark it and move on*
- *Use estimation to check if your answers are reasonable*

📖 *After the Test*

- *Read the full explanation for every question you got wrong*
- *Write down which topics gave you trouble (not just question numbers)*
- *Study those topics before taking the next test*
- *Record your score in the Test Tracker*

 Common Mistakes in Grade 8 Math

 **Exponents:** $(ab)^n = a^n b^n$, but $a^m + a^n \neq a^{m+n}$. Only multiply/divide to combine.

 **Slope formula:** $m = \frac{y_2 - y_1}{x_2 - x_1}$ — keep the order consistent.

 **Systems of equations:** The solution must satisfy both equations.

 **Transformations:** Rotations and reflections change position; dilations change size.

 **Volume:** Use $\pi \approx 3.14$ or leave as π — match what the question asks.



“ The students who improve the most aren't the ones who take the most tests — they're the ones who carefully review every mistake. Make that your priority. ”



Find more at
[ViewMath.com/Grade8](https://www.viewmath.com/Grade8)



 **ViewMath.com**



Grade 8 Formula Reference

Keep this page handy — you may use it during your practice tests!

Exponent Rules

$$a^m \cdot a^n = a^{m+n} \quad (a^m)^n = a^{mn} \quad (ab)^n = a^n \cdot b^n$$
$$\frac{a^m}{a^n} = a^{m-n} \quad a^0 = 1 \quad (a \neq 0) \quad a^{-n} = \frac{1}{a^n}$$

Lines & Linear Equations

Slope: $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\text{rise}}{\text{run}}$

m = slope b = y -intercept

Slope-intercept: $y = mx + b$

Parallel lines: same slope

Proportional: $y = mx$

Proportional: passes through origin

Scientific Notation

$a \times 10^n$ where $1 \leq |a| < 10$

Multiply: add exponents

Divide: subtract exponents

Roots & Number Sense

Perfect squares: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144

Perfect cubes: 1, 8, 27, 64, 125 $\sqrt{2} \approx 1.414$ $\sqrt{3} \approx 1.732$ $\pi \approx 3.14159$

Pythagorean Theorem & Distance

$a^2 + b^2 = c^2$ c = hypotenuse (longest side of a right triangle) **Distance:** $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Volume Formulas

Cylinder $V = \pi r^2 h$ **Cone** $V = \frac{1}{3} \pi r^2 h$ **Sphere** $V = \frac{4}{3} \pi r^3$

Angle Relationships

Triangle angle sum: 180°

Exterior angle = sum of two remote interior angles

Parallel lines + transversal: Alternate interior angles are equal • Co-interior angles sum to 180°

Functions

Each input $\rightarrow$ exactly one output **Vertical line test:** if any vertical line hits graph more than once $\Rightarrow$ not a function

Linear: constant rate of change ($y = mx + b$)

Nonlinear: rate of change varies

Transformations

Translation: slide

Reflection: flip

Rotation: turn

Dilation: resize

Congruent = same shape & size

Similar = same shape, proportional size



Tip: Bookmark this page! Review it before each test so these formulas become second nature.



Find more at
[ViewMath.com/Grade8](https://www.viewmath.com/Grade8)



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. True or false: The number $\frac{22}{7}$ is equal to π .

Your Answer:

2. The table below shows four repeating decimals and the power of 10 a student used to convert each. Which one uses the **WRONG** power of 10?

Decimal	Multiply by
$0.\overline{7}$	10
$0.\overline{45}$	100
$0.\overline{123}$	100
$0.\overline{8}$	10

- (A) $0.\overline{7}$ (B) $0.\overline{45}$
 (C) $0.\overline{123}$ (D) $0.\overline{8}$

3. The table below shows a student's work to approximate $\sqrt{14}$. What should go in the blank?

Guess	Square	Compare to 14
3	9	too small
4	16	too big
3.7	13.69	too small
3.8	14.44	too big
?	?	closest

- (A) 3.74, because $3.74^2 = 13.9876$ (B) 3.72, because $3.72^2 = 13.8384$
 (C) 3.80, because $3.8^2 = 14.44$ (D) 3.75, because $3.75^2 = 14.0625$



Find more at
[ViewMath.com/Grade8](https://www.viewmath.com/Grade8)



4. What is the best estimate for $5 - \sqrt{7}$?

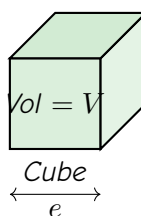
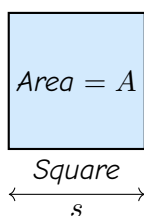
(A) 1.4

(B) 2.4

(C) 3.0

(D) 0.4

5. The diagram shows a square and a cube. The square has an area of A square units and the cube has a volume of V cubic units. If $A = V$, which pair of side lengths is correct?



(A) $s = 6, e = 6$

(B) $s = 8, e = 4$

(C) $s = 9, e = 3$

(D) $s = 5, e = 5$

6. Estimate the product $498,000,000 \times 6,200$ by first writing each factor in scientific notation and then computing.

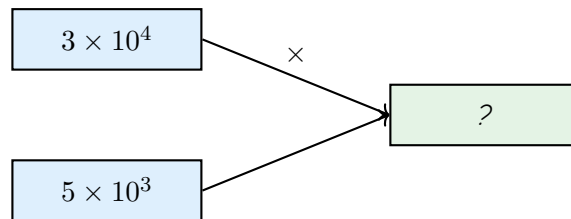
Your Answer:



Find more at
[ViewMath.com/Grade8](https://www.viewmath.com/Grade8)



7. Study the diagram below. Each box produces its output by multiplying the two inputs. What belongs in the output box marked “?”?



(A) 8×10^7

(B) 1.5×10^7

(C) 1.5×10^8

(D) 15×10^7

8. A bike rental company charges \$8 per hour. Which equation models the total cost y for x hours?

(A) $y = x + 8$

(B) $y = 8x$

(C) $y = \frac{x}{8}$

(D) $y = 8x + 10$

9. Find the slope through $(3, -1)$ and $(7, 11)$.

Your Answer:

10. Solve $\frac{x+5}{2} = 9$.

Your Answer:



Get Online



Find more at
[ViewMath.com/Grade8](https://www.viewmath.com/Grade8)



★ 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 False

2 C

3 D

4 B

5 B

6 $\approx 3.1 \times 10^{12}$

7 C

8 B

9 3

10 $x = 13$

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 $\frac{22}{7} \approx 3.142857 \dots$ is a rational approximation of π , but $\pi = 3.14159265 \dots$ is irrational. They are close but not equal.

2 $0.\overline{123}$ has a 3-digit repeating block, so you should multiply by $10^3 = 1000$, not 100.



Find more at
[ViewMath.com/Grade8](https://www.viewmath.com/Grade8)



3 $3.74^2 = 13.9876$ (under) and $3.75^2 = 14.0625$ (just over). 14.0625 is very close to 14, so 3.75 is the best next estimate.

4 $\sqrt{7} \approx 2.646$, so $5 - \sqrt{7} \approx 5 - 2.646 = 2.354 \approx 2.4$.

5 If $s = 8$, then $A = 8^2 = 64$. If $e = 4$, then $V = 4^3 = 64$. Since $A = V = 64$, the pair $s = 8, e = 4$ works.

6 $498,000,000 \approx 5 \times 10^8$ and $6,200 \approx 6.2 \times 10^3$. Product $\approx 5 \times 6.2 \times 10^{11} = 31 \times 10^{11} = 3.1 \times 10^{12}$.

7 $(3 \times 10^4)(5 \times 10^3) = 15 \times 10^7 = 1.5 \times 10^8$.

8 At \$8 per hour with no extra fee, the relationship is proportional: $y = 8x$.

9 $m = \frac{11 - (-1)}{7 - 3} = \frac{12}{4} = 3$.

10 Multiply by 2: $x + 5 = 18$. Subtract 5: $x = 13$.



Well done checking your answers!

Keep practicing to strengthen your skills.



Find more at
[ViewMath.com/Grade8](https://www.viewmath.com/Grade8)



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!