

10

Washington

Smarter Balanced

GRADE

8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

10

PRINTED
TESTS



2

ONLINE
TESTS



Build Confidence



Master Key Math Skills

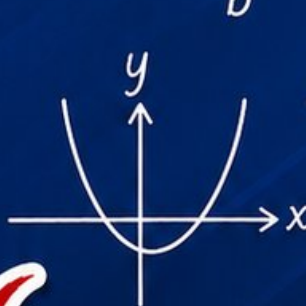
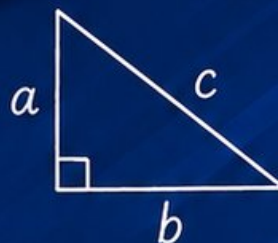


Answer Explanations for
Every Question



Test-Taking Strategies
That Work

$$y = mx + b$$



$$3x - 7 = 2(x + 5)$$
$$x = 17$$

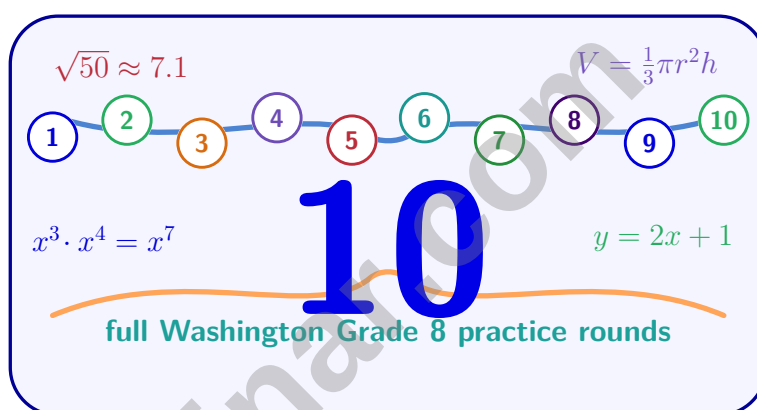


USE THESE TWO
**ADDITIONAL ONLINE
PRACTICE TESTS**

FOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.

10 Washington Smarter Balanced Grade 8 Math Practice Tests

Washington Grade 8 Smarter Balanced Practice for rain-or-shine preparation in functions, scientific notation, equations, geometry, data, and probability



Ten complete 40-question Grade 8 Smarter Balanced practice rounds with linear relationships, scientific notation, real numbers, equations, functions, geometry, data analysis, probability, answer keys, and clear explanations for every item.

Jay Daie and Reza Nazari



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Welcome, Washington Grade 8 Problem Solver!

Ten focused rounds for sharper Washington Smarter Balanced math thinking

This book gives you ten full Grade 8 Smarter Balanced math practice tests. Each round is built to help you notice structure, compare quantities, use linear reasoning, handle real numbers, and explain your thinking with care.

Grade 8 standards focus: This page supports **Operations with Scientific Notation** (8.EE.A.4): Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. It also prepares you for **Angles in Triangles and Parallel Lines** (8.G.A.5): Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about angles created when parallel lines are cut by a transversal, and the...

Your Washington Practice Promise

I will read every question carefully, choose a strategy that fits, write enough work to prove my answer, and use corrections as training for the next test.

Read

Model

Verify

How to Use This Book

A ten-session plan for confident Grade 8 review

1. **Warm up with the review pages.** Notice the big ideas before starting the tests.
2. **Complete one test at a time.** Treat each 40-question round like a real practice session.
3. **Show your reasoning.** Jot a proportion, equation, diagram, number line, or quick estimate when it helps.
4. **Correct actively.** Rework missed items before reading the explanation.
5. **Choose the next target.** After each test, name one skill and one habit to improve.

Grade 8 standards focus: Keep the routine connected to **Slope and the Equations of a Line** (8.EE.B.6): Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line. Derive $y = mx$ and $y = \dots$. Another recurring target is **Scatter Plots and Patterns in Data** (8.SP.A.1): Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association.

Washington review rhythm: Work a test, score it, study your misses, then come back ready for the next round with one clear goal.



What Is Inside?

Ten Washington Smarter Balanced tests, 400 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Linear relationships, integer exponents, scientific notation, real-number reasoning, and careful reading.
Tests 4–6	Expressions, equations, inequalities, transformations, geometry, and multi-step problem solving.
Tests 7–9	Data analysis, probability, mixed review, stamina, and choosing efficient strategies.
Test 10	A final Washington round to show growth across the whole book.
Answer Pages	Compact keys and explanations that show why each answer works.

The tests are mixed on purpose. Grade 8 success means recognizing which idea is being tested even when the next question changes format.

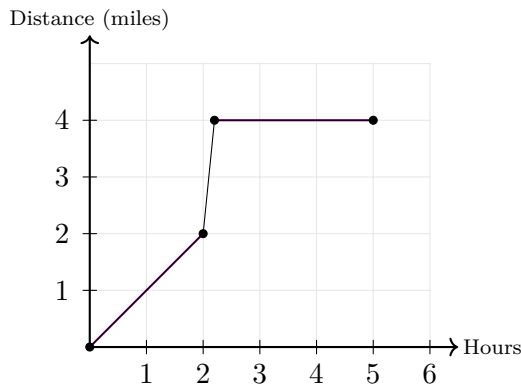
Grade 8 standards focus: Use these habits while practicing **Solving Real Problems with Systems** (8.EE.C.8c): Solve real-world and mathematical problems leading to two linear equations in two variables. The same routine helps with **Solving Linear Inequalities** (8.EE.C.8b): Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.



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1)

A traveler's distance graph shows: 0 to 2 hours rising, then a jump, then flat. What does the jump represent?

- ☐ A. The traveler rested without moving ☐ C. This graph cannot represent a real physical scenario (discontinuity)
☐ B. The traveler waited at the same distance ☐ D. The traveler went backward in distance

2) A principal of \$3,000 is invested at 5% compound interest annually. What is the amount after 2 years (rounded to nearest cent)?

3) A cylinder has radius 1.5 inches and height 8 inches. What is the surface area? (Use $\pi \approx 3.14$.)

- ☐ A. 28.3 in² ☐ C. 75.4 in²
☐ B. 47.1 in² ☐ D. 89.5 in²



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4) A distance formula for a moving object is $d = 45t$, where d is distance in miles and t is time in hours. What is the slope, and what does it represent?

- ☐ A. Slope is 45; represents the speed in mph
- ☐ B. Slope is 45; represents the distance traveled
- ☐ C. Slope is 1; represents constant velocity
- ☐ D. Slope is 0; the object is stationary

5) What is $\sqrt[3]{64}$?

- ☐ A. 3
- ☐ B. 6
- ☐ C. 5
- ☐ D. 4

6) Solve by elimination:
$$\begin{cases} 2x + y = 7 \\ x - y = 2 \end{cases}$$

- ☐ A. (2, 3)
- ☐ B. (1, 5)
- ☐ C. (3, 1)
- ☐ D. (4, -1)

7) Compute $(2.5 \times 10^3) \times (4 \times 10^2)$ and write your answer in scientific notation.

8) Function with slope 2 and y -intercept -5 is?

- ☐ A. $y = 2x - 5$
- ☐ B. $y = -5x + 2$
- ☐ C. $y = 2x + 5$
- ☐ D. $y = -2x - 5$



9) Which of these is a NONLINEAR function?

☐ A. $y = 0.5x - 10$

☐ C. $y = -\frac{2}{3}x + 8$

☐ B. $y = 15 - 2x$

☐ D. $y = x^3$

10) A plant grows such that its height is modeled by $h = 2t + 15$, where h is height in cm and t is time in weeks. Interpret the meaning of the number 2 in this equation.

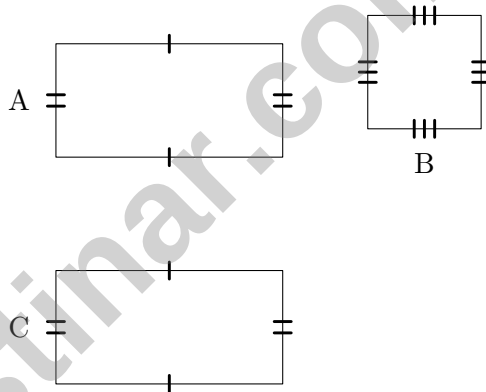
☐ A. The plant starts at a height of 2 cm.

☐ C. The plant reaches a height of 2 cm.

☐ B. The plant grows 2 cm per week.

☐ D. The plant grows for 2 weeks total.

11) Which pair of figures is congruent?


☐ A. Figures A and B

☐ C. Figures B and C

☐ B. Figures A and C

☐ D. None are congruent

12) A segment from $(0, 0)$ to $(9, 12)$ is dilated by scale factor $\frac{2}{3}$ centered at the origin. What is the length of the dilated segment?

☐ A. 20 units

☐ C. 15 units

☐ B. 12 units

☐ D. 10 units

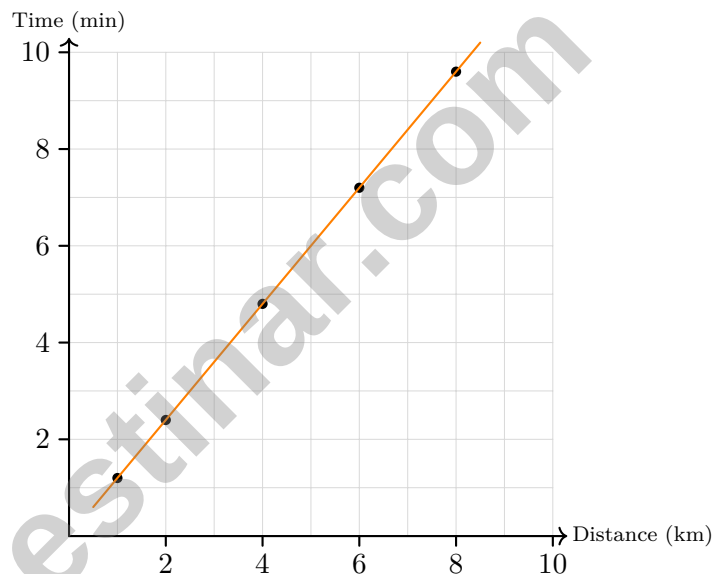

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1) A survey of 240 shoppers by age group and purchase type:

	Apparel	Electronics	Total
Teen	48	32	80
Adult	72	88	160
Total	120	120	240

What is the joint relative frequency of teens buying electronics, as a percentage?

- ☐ A. $\approx 13\%$
☐ C. $\approx 33\%$
☐ B. $\approx 27\%$
☐ D. $\approx 40\%$



2)

A delivery company tracks distance versus delivery time. The trend line shows an almost perfect fit with points nearly aligned. What can you conclude?

- ☐ A. Distance and time are unrelated
 ☐ C. The trend line should not be trusted
☐ B. There is a strong linear relationship with very small residuals
 ☐ D. The data contains measurement errors



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3) Which pair of figures is NOT similar?

- ☐ A. Two circles with radii 3 and 6 ☐ C. A rectangle 2×4 and a rectangle 3×6
☐ B. A 3–4–5 triangle and a 6–8–10 triangle ☐ D. A square 5×5 and a rectangle 5×10

4) A business profit function is $P(x) = 50x - 200$, where x is the number of units sold. What is the profit when 10 units are sold?

- ☐ A. \$300 ☐ C. \$200
☐ B. \$250 ☐ D. \$500

5) Which of the following best describes $0.\overline{99}$?

- ☐ A. Irrational ☐ C. Equal to 1, rational
☐ B. Between 0 and 1, rational ☐ D. Greater than 1, irrational

6) Which fraction is equivalent to $0.\overline{999}$?

- ☐ A. $\frac{999}{1000}$ ☐ C. $\frac{1}{999}$
☐ B. $\frac{9}{10}$ ☐ D. $\frac{999}{999} = 1$

7) Compare two accounts: Account A offers 4% simple interest for 5 years on \$1,000. Account B offers 3% compound interest annually for 5 years on \$1,000. Which earns more interest?

- ☐ A. Cannot determine ☐ C. They earn equal interest
☐ B. Account B (compound) ☐ D. Account A (simple)



1) Expand $(x + 5)^2$.

☐ A. $x^2 + 10x + 25$

☐ B. $x^2 + 25$

☐ C. $x^2 + 5x + 25$

☐ D. $x^2 + 10x + 10$

2) Simplify $(p^{-2})^3$.

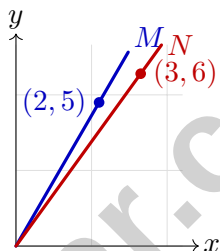
☐ A. p^1

☐ B. p^6

☐ C. p^{-5}

☐ D. p^{-6}

3) Two lines are shown on the same graph. Line M passes through $(0, 0)$ and $(2, 5)$. Line N passes through $(0, 0)$ and $(3, 6)$. Which statement is true?



☐ A. Line M is steeper

☐ B. Line N is steeper

☐ C. Both lines have the same steepness

☐ D. Cannot be determined from the information

4) A student uses elimination to solve: $3x + 2y = 16$ and $5x - 2y = 24$. They add the equations to get $8x = 40$, so $x = 5$. Then they substitute to find $y = 0.5$. Is this correct?

☐ A. No, adding eliminates x , not y .

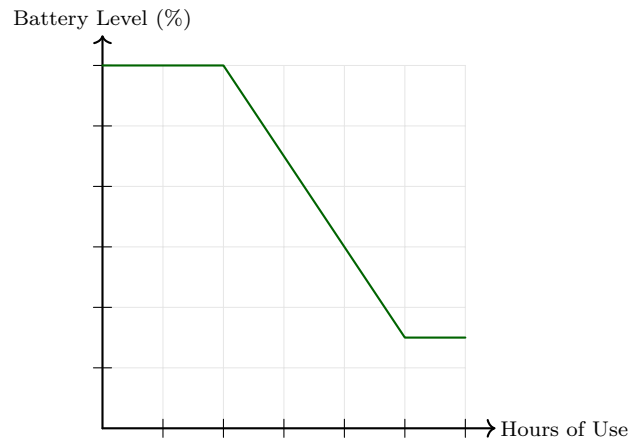
☐ B. No, the substitution is wrong.

☐ C. No, the system has no solution.

☐ D. Yes, the solution is correct.

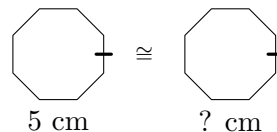


5)



A smartphone battery charges to 100%, remains fully charged during 2 hours of non-use, then drains steadily over 3 hours of active use. Which statement is true?

- ☐ A. The phone uses battery only during the first 2 hours
☐ B. The battery drains faster during non-use
☐ C. The battery level is constant from 0 to 2 hours
☐ D. The phone battery reaches 0% at 6 hours
- 6) Two congruent regular octagons are shown. Each octagon has 8 sides of equal length. If Octagon 1 has a side length of 5 cm and a perimeter of 40 cm, what is the perimeter of Octagon 2?



- ☐ A. 20 cm
☐ B. 40 cm
☐ C. 5 cm
☐ D. 80 cm



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Washington Smarter Balanced Grade 8 Practice Test Answer Keys

How to use this section with a Grade 8 student:

1. check the answer first and circle any item that needs another look
2. retry the problem with fresh work before reading the explanation
3. write one short lesson learned from each missed or guessed item

A strong review routine turns every correction into a sharper plan for the next Washington Smarter Balanced practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice C is correct.** **(8.F.B.5)** A jump discontinuity in a distance-time graph would mean the distance changes suddenly without showing the travel in between, which is not physically realistic for normal motion. A real distance-time graph should change continuously.
- 2) **The correct answer is \$3,307.50.** **(8.G.B.7)** $A = 3000(1.05)^2 = 3000 \times 1.1025 = \$3,307.50$.
- 3) **Choice D is correct.** **(8.G.C.9)** $SA = 2\pi r^2 + 2\pi rh = 2(3.14)(1.5)^2 + 2(3.14)(1.5)(8) = 14.13 + 75.36 = 89.49 \approx 89.5$ in².
- 4) **Choice A is correct.** **(8.SP.A.3)** In $d = mt + b$ form, $m = 45$ is the slope. Here it represents speed: 45 miles per hour.
- 5) **Choice D is correct.** **(8.EE.A.2)** $4 \times 4 \times 4 = 64$, so $\sqrt[3]{64} = 4$.
- 6) **Choice C is correct.** **(8.EE.C.8a)** Add the equations to eliminate y : $(2x + y) + (x - y) = 7 + 2$, so $3x = 9$, giving $x = 3$. Substitute: $3 - y = 2$, so $y = 1$. Solution: $(3, 1)$.
- 7) **The correct answer is 1×10^6 .** **(8.EE.A.4)** Multiply coefficients: $2.5 \times 4 = 10$. Add exponents: $10^{3+2} = 10^5$. Result: $10 \times 10^5 = 1 \times 10^6$.
- 8) **Choice A is correct.** **(8.F.A.2)** In $y = mx + b$: $m = 2$, $b = -5$, so $y = 2x - 5$.
- 9) **Choice D is correct.** **(8.F.A.3)** $y = x^3$ has x raised to the power 3, making it nonlinear. The other three options are all linear (form $y = mx + b$).
- 10) **Choice B is correct.** **(8.F.B.4)** In $h = mt + b$, the slope $m = 2$ represents the rate of change: 2 cm per week. The number 15 is the initial height (intercept).
- 11) **Choice B is correct.** **(8.G.A.2)** Figures A and C are both 4×2 rectangles. Figure B is a 2×2 square, so it is not congruent to either rectangle.
- 12) **Choice D is correct.** **(8.G.A.3)** Original length: $\sqrt{9^2 + 12^2} = \sqrt{81 + 144} = \sqrt{225} = 15$. Dilated: $15 \times \frac{2}{3} = 10$.
- 13) **Choice A is correct.** **(8.G.A.5)** Co-interior angles (same-side interior angles) are supplementary: $124 + y = 180$, so $y = 56^\circ$.
- 14) **Choice B is correct.** **(8.G.B.6, 8.G.B.7)** Verify: $121 + 3600 = 3721 = 61^2$. This is the 11-60-61 Pythagorean triple.
- 15) **Choice A is correct.** **(8.G.B.8)** Distance $= \sqrt{8^2 + 6^2} = \sqrt{64 + 36} = \sqrt{100} = 10$.
- 16) **Choice A is correct.** **(8.G.C.9)** From $V = \pi r^2 h$: $1256 = 3.14 \times 100 \times h \Rightarrow h = \frac{1256}{314} = 4$ cm.
- 17) **Choice D is correct.** **(8.G.B.7)** Let the smaller angle be x . Then $x + 5x = 180$, so $6x = 180$ and $x = 30^\circ$. The larger angle is $5 \times 30 = 150^\circ$.
- 18) **The correct answer is A, C.** **(8.G.B.7)** A is correct: $P(\text{heads}) = \frac{1}{2}$. C is correct: $P(\text{heads and 4}) = \frac{1}{2} \times \frac{1}{6} = \frac{1}{12}$. B is wrong: $P(4) = \frac{1}{6}$. D is wrong: total outcomes = 12. E is wrong: $P(\text{not heads}) = \frac{1}{2}$.
- 19) **Choice B is correct.** **(8.G.C.9)** $B = 10 \times 7 = 70$ ft². $V = \frac{1}{3} \times 70 \times 12 = 280$ ft³.
- 20) **Choice A is correct.** **(8.G.A.5)** Sum for heptagon: $(7 - 2) \times 180 = 900^\circ$. Each angle: $\frac{900}{7} \approx 128.6^\circ \approx 129^\circ$.
- 21) **Choice B is correct.** **(8.SP.A.1)** An upward trend means both variables increase together, indicating positive correlation. As temperature rises (moving right), ice cream sales rise (moving up).
- 22) **Choice A is correct.** **(8.G.B.8)** Smaller MAD (1.5) indicates more consistent performance near the mean. Player A's scores vary less, making him more predictably reliable.
- 23) **Choice D is correct.** **(8.EE.A.1)** The quotient rule shows: $\frac{x^5}{x^5} = x^{5-5} = x^0$. Since $\frac{x^5}{x^5} = 1$, we have $x^0 = 1$.
- 24) **Choice A is correct.** **(8.EE.C.7)** GCF is 4: $4x^2 + 16x + 16 = 4(x^2 + 4x + 4) = 4(x + 2)^2$.
- 25) **Choice B is correct.** **(8.F.A.1)** Input 5 maps to both 10 and 15, violating the definition of a function.
- 26) **Choice B is correct.** **(8.G.B.7)** Perimeter $= 8 + 5 + 5 + \pi \times 4 = 18 + 12.56 = 30.56$ m. The top edge is not counted because the semicircle is attached there.
- 27) **Choice C is correct.** **(8.SP.A.4)** Column-conditional frequency: among Science club (column total 216), Math-lovers are 84. Divide by column total, not row or grand total.
- 28) **Choice A is correct.** **(8.EE.B.5)** Using points $(1, 15)$ and $(2, 30)$: slope $= \frac{30 - 15}{2 - 1} = \frac{15}{1} = 15$ dollars per hour.



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Hi, Thoughtful Reader!

◇ A strong Grade 8 test taker is also a strong reader. You practiced turning words, tables, graphs, and diagrams into math decisions. ◇

★ **Remember this:** That skill grows each time you slow down enough to ask what the problem is really telling you and what it is really asking for. This version gave you 10 opportunities to rehearse test-day habits. ★

Reader-to-Solver Skills

- **Circle the Ask:** Make the target visible.
- **Sort Information:** Separate useful facts from extra words.
- **Match Units:** Keep quantities connected.
- **Answer Fully:** Include the value and what it means.

Grade 8 test-day tip: After solving, reread only the final question. Make sure your answer matches it exactly.

If you want to share something or ask a question, please email me at jay@testinar.com.

Jay Daie

Your Reading-and-Math Helper

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **10** full-length Math practice tests and **2** online tests to help Grade 8 students build confidence, strengthen skills, and excel on standardized assessments.

Each practice test is carefully crafted to reflect the latest standards and includes a variety of question types, realistic test conditions, and detailed answer explanations.

Perfect for classroom use, homework, test preparation, and extra practice at home.



THIS BOOK INCLUDES:

10

Full-Length
Printed Tests

2

Online
Practice Tests



Detailed Answers
& Explanations



**MORE PRACTICE.
GREATER RESULTS.**

Give your child the tools to build strong math skills, confidence, and a positive attitude toward learning.

WHAT YOU'LL GAIN



**Build
Confidence**

Practice regularly to feel prepared and test-ready.



**Master
Key Skills**

Develop strong math skills and problem solving abilities.



**Improve
Understanding**

Learn with clear explanations and step-by-step solutions.



**Test
Strategies**

Learn proven strategies to approach every question with confidence.



**Boost
Performance**

Apply your knowledge and achieve your best score!

TOPICS COVERED

- ✓ The Number System
- ✓ Expressions & Equations
- ✓ Inequalities
- ✓ Functions
- ✓ Geometry
- ✓ Ratios & Proportions
- ✓ Statistics & Probability
- ✓ Data Analysis
- ✓ Measurement
- ✓ Pythagorean Theorem
- ✓ Surface Area & Volume
- ✓ And More!



2 ONLINE TESTS

Use these two additional online practice tests for extra review after the printed tests in this book.



2 EXTRA ONLINE TEST ACCESS CODE IS INSIDE THE BOOK!

Don't lose it—your extra practice and success start here!



PRACTICE
REGULARLY



STAY
FOCUSED



SOLVE
CONFIDENTLY



SUCCEED
BRIGHTLY