

10 Arizona AASA

GRADE
8
MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

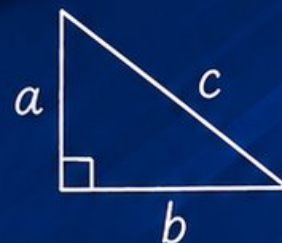
10 PRINTED
TESTS



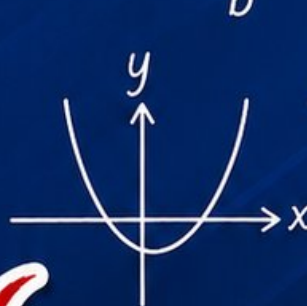
2 ONLINE
TESTS



- ✓ Build Confidence
- ✓ Master Key Math Skills
- ✓ Answer Explanations for Every Question
- ✓ Test-Taking Strategies That Work



$$y = mx + b$$



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

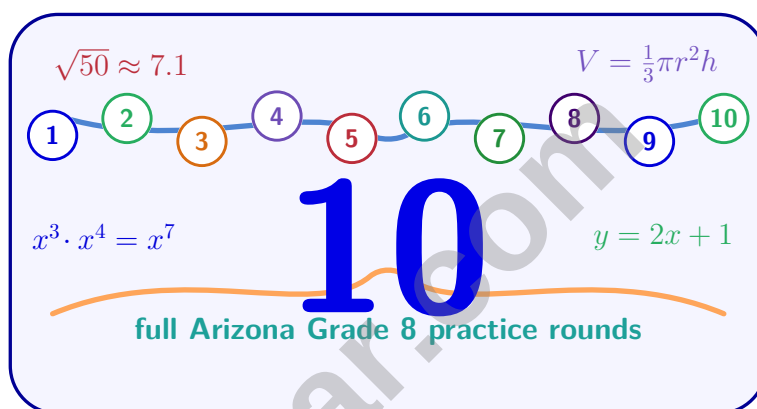


USE THESE TWO
**ADDITIONAL ONLINE
PRACTICE TESTS**

FOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.

10 Arizona AASA Grade 8 Math Practice Tests

Arizona Grade 8 AASA Practice for desert-sharp reasoning with rates, proportional graphs, equations, geometry, data analysis, and chance



Ten complete 40-question Grade 8 AASA 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



Copyright ©

Testinar Inc



Published by Testinar Inc

Testinar.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.

This publication is independently produced and has no official connection to any state, district, or national testing program.

Test names and organizational names used herein are the property of their respective trademark holders.



Copyright ©

Welcome, Arizona Grade 8 Problem Solver!

Ten focused rounds for sharper Arizona AASA math thinking

This book gives you ten full Grade 8 AASA 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 **What Is a Function?** (8.F.A.1): Understand that a function is a rule that assigns to each input exactly one output. Another recurring target is **Multiplying Linear Expressions and Factoring** (8.EE.C.7): Fluently solve linear equations and inequalities in one variable.

Your Arizona 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 **Linear vs. Nonlinear Functions** (8.F.A.3): Interpret $y = mx + b$ as defining a linear function. Give examples of functions that are not linear. The same routine helps with **Composite Figures: Area and Perimeter** (8.G.B.7): Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world context and mathematical problems in two and three dimensions.

Arizona 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 Arizona AASA 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 Arizona 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 **Rotations, Reflections, and Translations** (8.G.A.1): Verify experimentally the properties of rotations, reflections, and translations. You will also meet **Rational and Irrational Numbers** (8.NS.A.1): Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats....



Scan me!
For more practice
& answers

Table of Contents

★ Practice Test 1	15
★ Practice Test 2	30
★ Practice Test 3	46
★ Practice Test 4	61
★ Practice Test 5	78
★ Practice Test 6	95
★ Practice Test 7	112
★ Practice Test 8	129
★ Practice Test 9	145
★ Practice Test 10	161
Practice Test Answer Keys	179
Practice Test Answers and Explanations	185

1) Multiply: $(6 \times 10^2) \times (3 \times 10^4)$

☐ A. 18×10^5

☐ B. 18×10^8

☐ C. 9×10^6

☐ D. 1.8×10^7

2) A cylindrical container open at the top has radius 3 cm and height 10 cm. If we need to cover only the curved surface and the bottom (not the top), how much area needs to be covered?

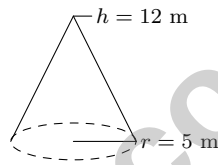
☐ A. $60\pi \text{ cm}^2$

☐ B. $69\pi \text{ cm}^2$

☐ C. $78\pi \text{ cm}^2$

☐ D. $88\pi \text{ cm}^2$

3)



A cone has a radius of 5 m and a height of 12 m. What is its volume? Use $\pi \approx 3.14$.

☐ A. 314 m^3

☐ B. 942 m^3

☐ C. 1884 m^3

☐ D. 2826 m^3

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



Scan me!

For more practice
& answers

5) For which system do the two equations represent parallel lines?

☐ A. $y = 2x + 1$ and $y = 2x - 3$

☐ C. $y = 2x + 1$ and $y = x + 3$

☐ B. $y = 2x + 1$ and $y = -\frac{1}{2}x + 1$

☐ D. $y = 2x + 1$ and $y = 2x + 1$

6) $S_1(w) = 20w$ and S_2 at $(0, 50)$, $(1, 56)$. After 4 weeks, which has more?

☐ A. S_1

☐ C. Both same.

☐ B. S_2

☐ D. Cannot be determined.

7) A credit card balance of \$750 charges 18% APR. If no payments are made, what is the interest charged after 1 year?

8) A scientist collects data on plant height over weeks. The table shows:

Week	0	1	2	3
Height (cm)	5	8	12	17

Is the growth linear or nonlinear?

☐ A. Linear; first difference is constant at 5

☐ C. Linear; the plant always grows

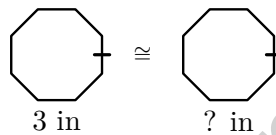
☐ B. Nonlinear; differences are 3, 4, 5 (not constant)

☐ D. Nonlinear; cannot predict height after week 3

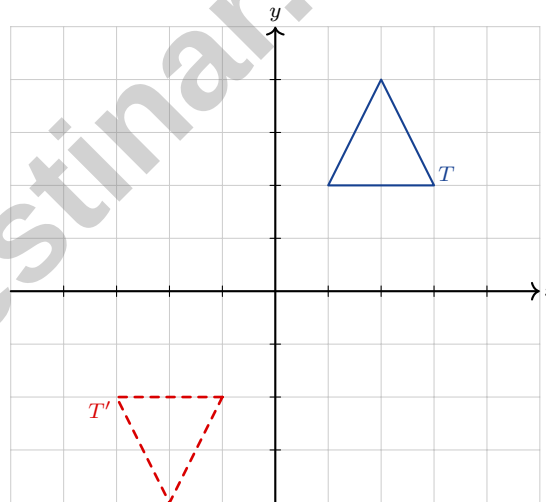

9) Which statement about the graph of a function is true?

- ☐ A. A function can cross the y -axis twice
- ☐ B. A function must cross the x -axis exactly once
- ☐ C. A function can have multiple x -intercepts but only one y -intercept
- ☐ D. A function must cross both axes exactly once

10) Two congruent regular polygons are shown. Each polygon has 8 sides. If one octagon has a side length of 3 inches, what is the side length of the other octagon?



- ☐ A. 1.5 inches
- ☐ B. 3 inches
- ☐ C. 6 inches
- ☐ D. 9 inches



11)

Triangle T (navy) is transformed to T' (red). Which transformation is most likely shown?

- ☐ A. Rotation 180°
- ☐ B. Reflection across line $y = x$
- ☐ C. Translation left 4, down 4
- ☐ D. Reflection across the x -axis



Scan me!
For more practice
& answers

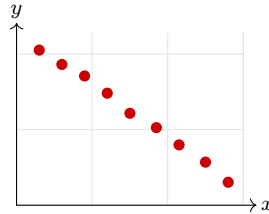
1) Which relation is NOT a function?

☐ A. $\{(3, 1), (3, 2), (4, 1)\}$

☐ C. $\{(0, 0), (1, 1), (2, 2)\}$

☐ B. $\{(1, 5), (2, 6), (3, 7)\}$

☐ D. $\{(2, 8), (3, 8), (4, 8)\}$



2)

A negative slope on a scatter plot indicates:

☐ A. There is no relationship between the variables

☐ C. As x increases, y increases on average

☐ B. The line is horizontal

☐ D. As x increases, y decreases on average

3) Triangle ABC is similar to Triangle DEF . Side $AB = 4$ cm, $BC = 5$ cm, $CA = 6$ cm. The perimeter of DEF is 45 cm. Find the length of EF .

☐ A. 15 cm

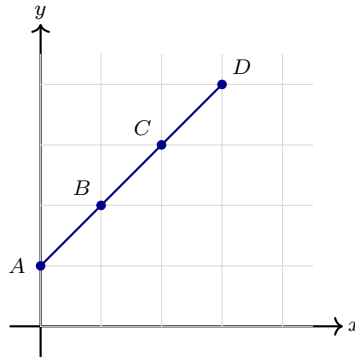
☐ C. 22.5 cm

☐ B. 18 cm

☐ D. 10 cm



- 4) From the graph, identify which point is on the function f .



Which ordered pair represents $f(2)$?

- ☐ A. (2, 1) ☐ C. (2, 3)
☐ B. (3, 4) ☐ D. (1, 2)
- 5) Which statement about the square roots of perfect squares is true?
- ☐ A. They cannot be classified as rational
☐ B. They are always irrational
☐ C. They never equal an integer
☐ D. They can always be written as whole numbers
- 6) Convert $0.\overline{45}$ to a fraction in simplest form.
- ☐ A. $\frac{9}{20}$ ☐ C. $\frac{45}{90} = \frac{1}{2}$
☐ B. $\frac{45}{100}$ ☐ D. $\frac{45}{99} = \frac{5}{11}$
- 7) Which radicand gives a square root closest to 5.5?
- ☐ A. 25 ☐ C. 33
☐ B. 28 ☐ D. 30



Scan me!
For more practice
& answers

- 1) A fitness gym charges only a flat \$50 monthly fee with no additional per-visit costs. If C is total monthly cost and m is the number of months, which equation represents this?

☐ A. $C = m + 50$

☐ C. $C = 50$

☐ B. $C = 50m$

☐ D. $C = m^2$

- 2) What is $\sqrt{225}$?

☐ A. 13

☐ C. 15

☐ B. 14

☐ D. 16

- 3) Multiply: $(x + 3)(x - 5)$

☐ A. $x^2 - 15$

☐ C. $x^2 - 2x - 15$

☐ B. $x^2 + 3x - 5$

☐ D. $x^2 + 8x - 15$

- 4) A fitness trainer charges a client based on the number of sessions attended. The data table shows:

Sessions	2	5	8
Cost (\$)	60	150	240

What is the slope (cost per session)?

☐ A. \$30 per session

☐ C. \$20 per session

☐ B. \$60 per session

☐ D. \$150 per session

- 5) A vending machine contains 32 coins (dimes and quarters). The total value is \$5.30. How many dimes are there?

☐ A. 8

☐ C. 14

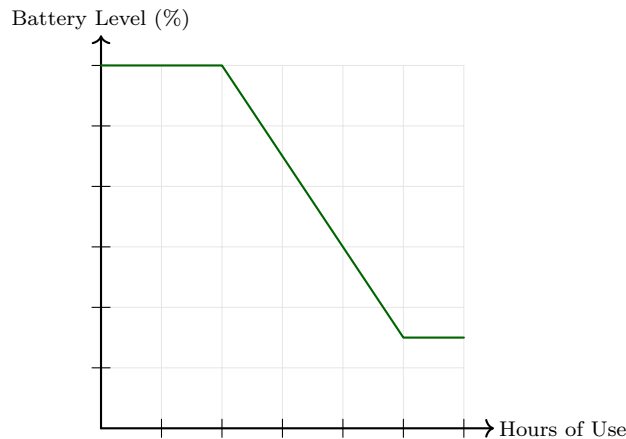
☐ B. 12

☐ D. 18



Scan me!
For more practice
& answers

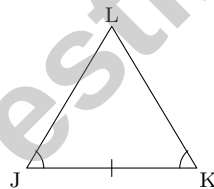
6)



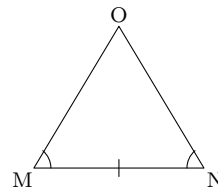
A smartphone battery charges to 100%, remains fully charged during 2 hours of non-use, then drains steadily over 3 hours of active use. Which statement is true?

- ☐ 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

7) Triangle JKL is congruent to triangle MNO. Which congruence statement is correct?



and



- ☐ A. Triangle $JKL \cong$ Triangle MNO
☐ B. Triangle $JKL \cong$ Triangle MON
☐ C. Triangle $JKL \cong$ Triangle NOM
☐ D. Triangle $JKL \cong$ Triangle ONM



Arizona AASA 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 Arizona AASA practice test.



Scan me!
For more practice
& answers

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (8.EE.A.4) Multiply: $6 \times 3 = 18 = 1.8 \times 10^1$. Add exponents: $10^{2+4} = 10^6$. Combine: $1.8 \times 10^1 \times 10^6 = 1.8 \times 10^7$.
- 2) **Choice B is correct.** (8.G.C.9) Lateral surface area $= 2\pi rh = 2\pi(3)(10) = 60\pi \text{ cm}^2$. Bottom base $= \pi r^2 = \pi(3)^2 = 9\pi \text{ cm}^2$. Total $= 60\pi + 9\pi = 69\pi \text{ cm}^2$.
- 3) **Choice A is correct.** (8.G.C.9) Volume of a cone: $V = \frac{1}{3}\pi r^2 h = \frac{1}{3} \times 3.14 \times 5^2 \times 12 = \frac{1}{3} \times 942 = 314 \text{ m}^3$.
- 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 A is correct.** (8.EE.C) Parallel lines have the same slope but different y -intercepts. Both equations $y = 2x + 1$ and $y = 2x - 3$ have slope 2 but different intercepts (1 and -3). Option D is the same line (infinitely many solutions).
- 6) **Choice A is correct.** (8.F.A.2) $S_1(4) = 80$. S_2 slope: $(56 - 50)/1 = 6$, so $S_2(4) = 50 + 6(4) = 74$. Since $80 > 74$, S_1 has more.
- 7) **The correct answer is \$135.** (8.G.B.7) $I = 750 \times 0.18 \times 1 = \135 .
- 8) **Choice B is correct.** (8.F.A.3) First differences: $8 - 5 = 3$, $12 - 8 = 4$, $17 - 12 = 5$. Non-constant differences indicate nonlinear growth.
- 9) **Choice C is correct.** (8.F.B.5) By the vertical line test, a function can have at most one y -intercept (at $x = 0$). But it can have many x -intercepts (zeros). Options A violates the vertical line test, B is sometimes false, D is false for functions that don't cross an axis.
- 10) **Choice B is correct.** (8.G.A.2) Congruent regular polygons have equal side lengths. Both octagons have side length 3 inches.
- 11) **Choice A is correct.** (8.G.A.3) Checking: $(1, 2) \rightarrow (-1, -2)$, $(3, 2) \rightarrow (-3, -2)$, $(2, 4) \rightarrow (-2, -4)$. All points follow the rule $(x, y) \rightarrow (-x, -y)$, confirming 180° rotation.
- 12) **Choice C is correct.** (8.G.A.5) In an isosceles triangle, the two base angles are equal. If the vertex angle is 40° , then $40 + 2x = 180$, so $x = 70^\circ$.
- 13) **Choice B is correct.** (8.G.B.6, 8.G.B.7) From $(\sqrt{24})^2 + 1^2 = c^2$, we get $24 + 1 = 25$, so $c = \sqrt{25} = 5$.
- 14) **Choice B is correct.** (8.G.B.7) Corresponding angles are congruent when a transversal cuts parallel lines. So $v = 68^\circ$.
- 15) **Choice A is correct.** (8.G.B.7) $V = \frac{1}{3} \times 25 \times 9 = 75 \text{ cm}^3$.
- 16) **The correct answer is $\frac{3}{2}$.** (8.EE.B.5) Three points: $(0, 0)$, $(2, 3)$, $(4, 6)$. Slope $= \frac{3}{2} = 1.5$.
- 17) **Choice D is correct.** (8.SP.A.1) Taller people generally wear larger shoe sizes, forming a clear upward trend. The relationship is positive (both increase together) and reasonably strong.
- 18) **Choice A is correct.** (8.SP.A.4) Men voting yes $= 120 - 75 = 45$. Relative frequency $= \frac{45}{120} = 0.375 = 37.5\%$.
- 19) **The correct answer is A, C.** (8.SP.B.5) 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: $P(\text{not heads}) = \frac{1}{2}$.
- 20) **Choice D is correct.** (8.EE.A.1) Simplify coefficients: $\frac{20}{5} = 4$. Simplify variables: $\frac{x^9}{x^3} = x^6$. Result: $4x^6$.
- 21) **Choice C is correct.** (8.EE.A.2) Both $9^2 = 81$ and $(-9)^2 = 81$, so both 9 and -9 are solutions.
- 22) **Choice A is correct.** (8.EE.C.7) Sum of areas: $x^2 + 2x + 4x + 8 = x^2 + 6x + 8$.
- 23) **Choice C is correct.** (8.F.A.1) A relation is a function only if each input has exactly one output. If input 5 appears three times but with the same output, it is still a function (just redundantly listed).
- 24) **Choice A is correct.** (8.F.B.4) For $x = 0$, $y = -5$. For $x = 2$, $y = 1$. For $x = 5$, $y = 10$. The sum is $-5 + 1 + 10 = 6$.
- 25) **Choice A is correct.** (8.G.B.8) Map distance is $\sqrt{100} = 10$ units. Actual distance is $10 \times 5 = 50$ miles.
- 26) **Choice D is correct.** (8.G.B.7) Decompose using subtraction: outer rectangle minus inner rectangle. Outer area $= 20 \times 10 = 200 \text{ m}^2$. Inner area $= 16 \times 6 = 96 \text{ m}^2$. Path area $= 200 - 96 = 104 \text{ m}^2$.
- 27) **Choice D is correct.** (8.G.A.5) For a 12-sided polygon: $(12 - 2) \times 180 = 10 \times 180 = 1800^\circ$.
- 28) **Choice D is correct.** (8.EE.B.5) Slope from $(1, 5)$ to $(3, 9)$ is $\frac{9 - 5}{3 - 1} = 2$. From $(3, 9)$ to $(x, 13)$: $2 = \frac{13 - 9}{x - 3}$, so $2 = \frac{4}{x - 3}$, giving $x = 5$.



Scan me!
For more practice
& answers

Hi, Momentum Builder!

◇ Finishing a Grade 8 practice book is not a small thing. It means you practiced persistence, patience, and flexible problem solving. ◇

★ **Remember this:** Some questions were quick. Others probably made you stop and think. Both kinds helped you grow because practice turns effort into confidence. This version gave you 10 opportunities to rehearse test-day habits. ★

Momentum Habits

- **Start Clean:** Write down what the problem gives you.
- **Pick a Tool:** Use a table, model, equation, or graph.
- **Keep Moving:** Skip and return when needed.
- **Review Smart:** Study mistakes without judging yourself.

Grade 8 test-day tip: If a problem feels stuck, change tools. A graph, table, or sketch can make the same idea clearer.

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

Jay Daie

Your Math Momentum Partner

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 | ✓ Statistics & Probability |
| ✓ Expressions & Equations | ✓ Data Analysis |
| ✓ Inequalities | ✓ Measurement |
| ✓ Functions | ✓ Pythagorean Theorem |
| ✓ Geometry | ✓ Surface Area & Volume |
| ✓ Ratios & Proportions | ✓ 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