

6 Utah RISE

GRADE 8 MATH PRACTICE TESTS

Standards Aligned Problem Solving For
Comprehensive Assessment Programs



6 PRINTED
TESTS



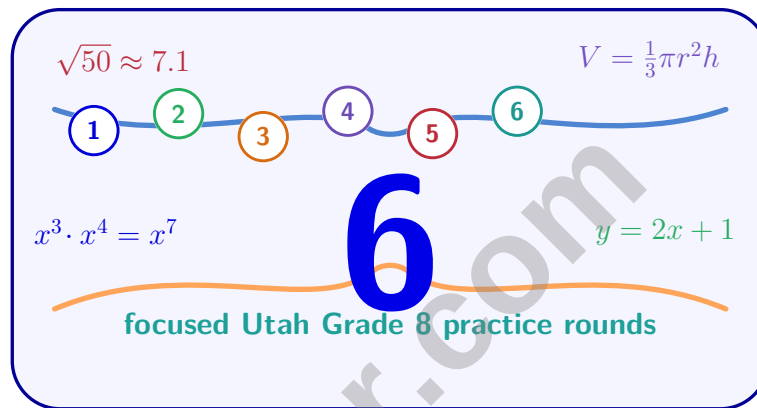
2 ONLINE
TESTS



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

6 Utah RISE Grade 8 Math Practice Tests

Grade 8 Standards-Aligned Practice with Keys and Clear Explanations



Six complete 40-question Grade 8 RISE practice rounds with real numbers, exponents, scientific notation, equations, functions, transformations, geometry, data analysis, probability, answer keys, and clear explanations for every item.

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Welcome, Utah Grade 8 Problem Solver!

Six focused rounds for sharper RISE math thinking

This book gives you six full Grade 8 RISE math practice tests. Each round is built to help you recognize structure, reason with real numbers and exponents, analyze linear relationships, connect equations with graphs, and explain your thinking with care.

Your Utah 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 six-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 an exponent rule, equation, graph, transformation, diagram, 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.

Utah 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?

Six RISE tests, 240 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Real numbers, exponents, scientific notation, equations, and careful reading.
Tests 4–6	Functions, systems, transformations, geometry, data analysis, and multi-step problem solving.
Answer Pages	Compact keys and explanations that show why each answer works.

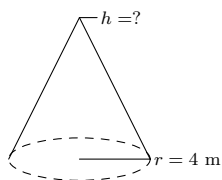
The tests are mixed on purpose. Grade 8 success means recognizing which idea is being tested even when the next question changes format.



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For more practice
& answers

Table of Contents

★ Practice Test 1	_____	14
★ Practice Test 2	_____	31
★ Practice Test 3	_____	48
★ Practice Test 4	_____	63
★ Practice Test 5	_____	80
★ Practice Test 6	_____	96
Practice Test Answer Keys	_____	113
Practice Test Answers and Explanations	_____	117



1)

A cone has a base radius of 4 m and volume of 201.06 m^3 . What is its height? (Use $\pi \approx 3.14$.)

☐ A. 12 m☐ C. 18 m☐ B. 15 m☐ D. 24 m2) The number $\sqrt[3]{8}$ (cube root of 8) is:☐ A. Irrational☐ C. 2.67☐ B. Between 8 and 16☐ D. 2, which is rational

3) A cube has a volume of 343 cubic units. What is the length of one edge of the cube?

☐ A. 6 units☐ C. 8 units☐ B. 9 units☐ D. 7 units

4) Which number is irrational?

☐ A. $\frac{7}{2}$ ☐ C. 0.25☐ B. 3☐ D. $\sqrt{5}$ 5) Is π^2 greater than or less than $(3.1)^2$?☐ A. Cannot be determined☐ C. Exactly equal to $(3.1)^2$ ☐ B. Less than $(3.1)^2$ ☐ D. Greater than $(3.1)^2$ 

- 6) A household budget for monthly net income of \$4,000 is divided as follows: Housing 35%, Food 20%, Transportation 15%, Utilities 10%, Savings 10%, Other 10%. How much is allocated to housing?



Monthly net income: \$4,000

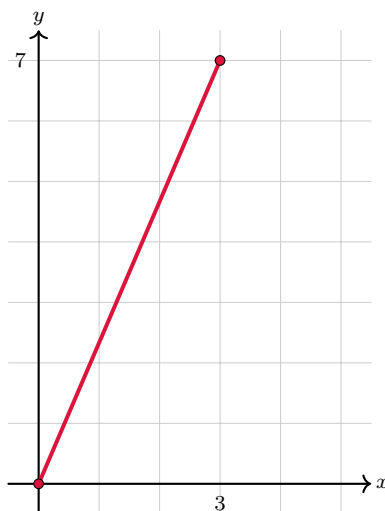
- ☐ A. \$400 ☐ C. \$1,400
☐ B. \$800 ☐ D. \$2,000
- 7) The data set $\{12, 14, 16, 18, 20\}$ has mean 16. Calculate the MAD.

- 8) The area of a square is $A = s^2$. If you square the side length, what is the area of the new square in terms of s ?
- ☐ A. s^2 ☐ C. $(s^2)^2 = s^4$
☐ B. s^3 ☐ D. $2s^2$
- 9) If $5.7 \times 10^7 = 57,000$, what is the exponent?

- ☐ A. 3 ☐ C. 5
☐ B. 2 ☐ D. 4



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10)

At $x = 6$, what is the value of y ?

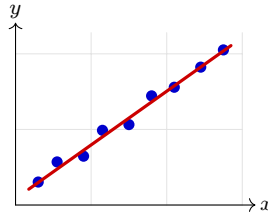
☐ A. 12☐ C. 14☐ B. 13☐ D. 15

11) A pizza restaurant charges \$12 for a large pizza and \$1.50 per topping. Is the total cost a function of the number of toppings?

☐ A. No, because the base price is fixed.☐ D. Yes, only if the customer is satisfied with the pizza.☐ B. No, because toppings are not free.☐ C. Yes, each number of toppings gives exactly one total cost.

- 1) A student states that the surface area of a cylinder with $r = 2$ and $h = 5$ is $SA = \pi r^2 + 2\pi rh = 4\pi + 20\pi = 24\pi$. What is the error?

- ☐ A. Used πr instead of πr^2 for one base ☐ C. The calculation is correct
☐ B. Forgot to count two circular bases ☐ D. Multiplied rh by 2 instead of 3



2)

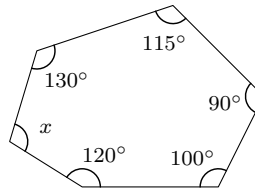
Which is the BEST description of a “line of best fit” on a scatter plot?

- ☐ A. A line that passes through every data point ☐ C. A line that generally shows the overall trend of the data
☐ B. A line that passes through no data points ☐ D. A line that only passes through the outliers
- 3) A right triangle has legs of 9 units and 40 units. What is the length of the hypotenuse?

- 4) Two points are at $(-3, 4)$ and $(5, -2)$. Calculate the distance between them. Round to the nearest tenth if necessary.



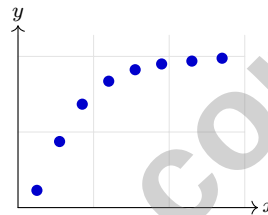
5)



A hexagon has five known interior angles: 120° , 100° , 90° , 115° , 130° . What is the sixth angle?

☐ A. 145°
☐ C. 165°
☐ B. 155°
☐ D. 175°

6)



A scatter plot shows years of experience (x-axis, 0–40 years) versus annual salary (y-axis, \$0–\$200k) for 100 workers. For the first 25 years, salaries increase steadily in a clear upward trend. After 25 years, salaries level off and stay relatively flat. What does this pattern indicate?

☐ A. The relationship is purely linear across all 40 years

☐ C. The relationship changes: linear growth early, then levels off (plateau)

☐ B. A single straight line can predict all salaries equally well

☐ D. Experience has no effect on salary after 25 years


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1) Which expression is equivalent to $\frac{y^5}{y^{-2}}$?

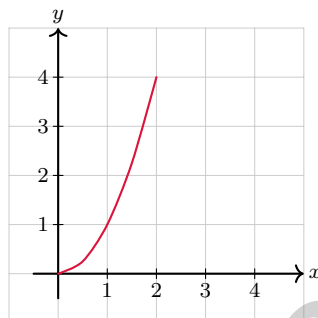
☐ A. y^{10}

☐ B. y^3

☐ C. y^{-7}

☐ D. y^7

2) The graph below curves upward. Is it linear?

☐ A. Yes, because x and y are both positive☐ B. No, the curve is not a straight line☐ C. Yes, the function is always increasing☐ D. No, only because it starts at the origin

3) An exterior angle of a triangle is 117° . If one of the remote interior angles is 68° , what is the other remote interior angle?

☐ A. 49°

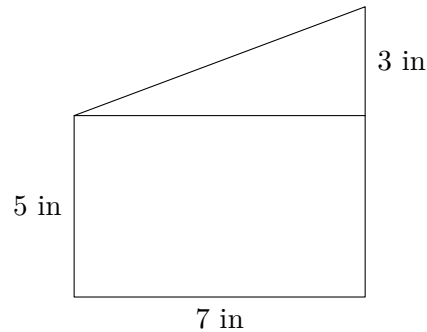
☐ B. 68°

☐ C. 112°

☐ D. 180°



- 4) A composite figure is made of a rectangle (7 in by 5 in) with a right triangle ($base = 7$ in, $height = 3$ in) on one side. Find the total area.



- ☐ A. 24.5 in^2 ☐ C. 45.5 in^2
☐ B. 35 in^2 ☐ D. 56 in^2
- 5) Find $(1.2 \times 10^6) + (8 \times 10^5)$ in scientific notation.
-
- 6) When the correlation between two variables is weak, the trend line:
- ☐ A. Has a slope of zero ☐ D. Will be very accurate for predictions
☐ B. Should not be used at all
☐ C. Will have large residuals and less reliable predictions



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Utah RISE 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 Utah RISE practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** (8.G.9) From $V = \frac{1}{3}\pi r^2 h$: $201.06 = \frac{1}{3} \times 3.14 \times 16 \times h = \frac{3.14 \times 16}{3} \times h = 16.747... \times h$. Thus $h = \frac{201.06}{16.747} \approx 12$ m.
- 2) **Choice D is correct.** (8.NS.1) $\sqrt[3]{8} = 2$ because $2 \times 2 \times 2 = 8$. Since 2 is an integer, it is rational.
- 3) **Choice D is correct.** (8.EE.2) If the volume is 343 cubic units, then $e^3 = 343$, so $e = \sqrt[3]{343} = 7$ units.
- 4) **Choice D is correct.** (8.NS.2) $\frac{7}{2} = 3.5$, 0.25, and 3 are all rational. Only $\sqrt{5}$ is irrational.
- 5) **Choice D is correct.** (8.NS.2) $(3.1)^2 = 9.61$ and $\pi^2 \approx (3.14159)^2 \approx 9.87$. Since $9.87 > 9.61$, π^2 is greater.
- 6) **Choice C is correct.** (8.G.7) Housing allocation = 35% of \$4,000 = $0.35 \times 4000 = \$1,400$.
- 7) **The correct answer is 2.4.** (8.G.8) Absolute deviations: $|12 - 16| = 4$, $|14 - 16| = 2$, $|16 - 16| = 0$, $|18 - 16| = 2$, $|20 - 16| = 4$. Sum = 12. MAD = $12/5 = 2.4$.
- 8) **Choice C is correct.** (8.EE.1) New side is s^2 , so new area is $(s^2)^2 = s^{2 \cdot 2} = s^4$.
- 9) **Choice D is correct.** (8.EE.3) $57,000 = 5.7 \times 10^4$ (move decimal 4 places left from 57,000 to get 5.7).
- 10) **Choice C is correct.** (8.EE.5) Slope $k = \frac{7}{3}$. Equation: $y = \frac{7}{3}x$. At $x = 6$: $y = \frac{7}{3}(6) = 14$.
- 11) **Choice C is correct.** (8.F.1) The total cost is determined by the number of toppings: cost = $12 + 1.50 \times$ (number of toppings). This is a function.
- 12) **Choice B is correct.** (8.F.5) A flat section means the function is constant, so the temperature does not change. This occurs from noon to 6pm.
- 13) **Choice C is correct.** (8.EE.8) From (1, 1) to (3, 4): slope = $\frac{4-1}{3-1} = \frac{3}{2}$.
- 14) **Choice C is correct.** (8.EE.7) When flying in opposite directions, combined speed = $480 + 520 = 1000$ mph. Distance = speed $\times$ time: $3000 = 1000t$, so $t = 3$ hours.
- 15) **Choice B is correct.** (8.G.4) Compute ratios of corresponding sides: $\frac{DE}{AB} = \frac{6}{3} = 2$, $\frac{DF}{AC} = \frac{8}{4} = 2$, $\frac{EF}{BC} = \frac{10}{5} = 2$. All ratios are constant ($= 2$), confirming similarity by SSS Similarity. Angles are also congruent in similar figures.
- 16) **Choice B is correct.** (8.F.1) Substitute $h = 2$: $T(2) = 25 - 6(2) = 25 - 12 = 13$.
- 17) **Choice C is correct.** (8.G.9) A rectangular prism has 6 rectangular faces (3 pairs of congruent rectangles). A complete net shows all 6 faces.
- 18) **Choice B is correct.** (8.G.8) DASHED line means strict inequality ($<$ or $>$). Shading BELOW means $y <$. Combined: $y < x - 2$.
- 19) **Choice B is correct.** (8.G.1) A 180° rotation about the origin maps $(x, y) \rightarrow (-x, -y)$. Distractor E is reflection across the x -axis.
- 20) **Choice A is correct.** (8.EE.6) In slope-intercept form $y = mx + b$, with $m = \frac{2}{5}$ and $b = -3$, we get $y = \frac{2}{5}x - 3$.
- 21) **The correct answer is $\frac{1}{2}$.** (8.G.7) Sample space: HH, HT, TH, TT. Exactly one heads: HT, TH. That's 2 of 4. $P = \frac{1}{2}$.
- 22) **The correct answer is B,C.** (8.SP.2) A is false: lines don't need to pass through actual data points. D is false: predictions are estimates with uncertainty. E is false: slopes can be negative, zero, or positive.
- 23) **Choice D is correct.** (8.EE.7) Subtract 1.2: $0.3p = 1.2$. Divide by 0.3: $p = 4$.
- 24) **Choice C is correct.** (8.EE.7) The inequality $x \geq -1$ includes -1 (closed circle) and all values greater (ray points right).
- 25) **Choice C is correct.** (8.SP.3) The y -intercept (15) is the cost when $u = 0$, representing fixed storage costs.
- 26) **Choice D is correct.** (8.EE.4) Add first: $(9 + 3.6) \times 10^5 = 12.6 \times 10^5 = 1.26 \times 10^6$. Then divide: $\frac{1.26 \times 10^6}{4 \times 10^2} = 0.315 \times 10^4 = 3.15 \times 10^3$.
- 27) **Choice A is correct.** (8.EE.8) Set the expressions equal: $\frac{1}{2}x + 3 = -x + 6$. Multiply by 2: $x + 6 = -2x + 12$, so $3x = 6$, giving $x = 2$. Then $y = \frac{1}{2}(2) + 3 = 4$. Solution: (2, 4).
- 28) **Choice A is correct.** (8.EE.7) FOIL: $(2x + 5)(3x - 1) = 6x^2 - 2x + 15x - 5 = 6x^2 + 13x - 5$.



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Hi, Strategy Solver!

◇ Grade 8 math rewards students who think before they calculate. You practiced choosing strategies, not just hunting for answers. This deep and steady book gave you six full Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

★ **Remember this:** That matters because stronger math students do not use one method for every question. They notice the structure and choose the tool that fits. ★

Strategy Moves

- **Estimate:** Know the neighborhood of the answer.
- **Simplify:** Rewrite numbers in friendlier forms.
- **Model:** Draw what the words describe.
- **Verify:** Put the answer back into the problem.

Grade 8 test-day tip: Pause for ten seconds before hard questions. A short plan can save several minutes.

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

Jay Daie

Your Strategy Guide

PRACTICE TODAY. ACHIEVE TOMORROW.

6

Give your child the confidence and skills they need with **6 full-length Grade 8 Math** practice tests that reflect real test formats and cover all key math standards. Perfect for building skills, strengthening problem-solving abilities, and achieving success on test day!

WHAT'S INSIDE?



Standards-Aligned Practice

Questions designed to cover essential Grade 8 math standards.



Variety of Question Types

Multiple-choice, short answer, and more to build well-rounded skills.



Real-World Applications

Engaging problems that connect math to everyday life.



Step-by-Step Progress

Track improvement and build confidence with every test.



COVERS ALL ESSENTIAL TOPICS

- | | |
|---------------------------------------|----------------------------|
| ✓ The Number System | ✓ Statistics & Probability |
| ✓ Expressions & Equations | ✓ Pythagorean Theorem |
| ✓ Ratios & Proportional Relationships | ✓ Volume & Surface Area |
| ✓ Linear Equations | ✓ Transformations |
| ✓ Functions | ✓ Inequalities |
| ✓ Geometry | ✓ Data Analysis & Graphing |
| | ✓ And More! |



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2 ONLINE TESTS



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