

# 3 Oklahoma OSTP Grade 7 Math Practice Tests

*Full-Length Test Prep with Detailed Answer Explanations*

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MISSION LAUNCHPAD

# 3 Practice Tests

 Grade 7 Math — Launch Sequence 

*Calling all future mathematicians!*

*You're about to launch into **3 full-length practice missions** covering every Grade 7 math topic — from proportional relationships to probability.*

 **Mission 1:** Explore the terrain

 **Mission 2:** Navigate with precision

 **Mission 3:** Achieve orbit

*Three missions. One launchpad. Infinite potential.*

“ Three missions is the perfect count for a focused launch. You'll cover the whole course and still have fuel to review! ”



# Mission Briefing

Your 3-mission flight plan for Grade 7 math mastery

## Mission Payload

- **3 Full-Length Practice Tests** — each covering all 9 chapters of Grade 7 math: ratios, percents, rational numbers, expressions, equations, geometry, circles & volume, statistics, and probability.
- **Detailed Answer Explanations** — not just the correct answer, but the reasoning behind every solution.
- **Mission Log** — record your scores, spot patterns, and track your trajectory toward mastery.

## Flight Plan

- **Mission 1 Survey Orbit.** Take this test without a timer. Get a clear read on the question types and discover which topics are your strongest — and which need fuel.
- **Mission 2 Guided Re-entry.** Review your Mission 1 results, study your weak spots, then launch Mission 2 with a soft timer (70 minutes). Focus on showing full work for every multi-step problem.
- **Mission 3 Full Launch.** Simulate test-day conditions: timed, quiet, independent. Compare your score with Mission 1 and celebrate your growth!

## Multiple Choice

Select the **single best answer** from A–D. Eliminate clearly wrong options first, then reason through what’s left. Show scratch work even when it’s not required — it sharpens your thinking.

## Constructed Response

Show every step of your solution. In Grade 7, partial credit often comes from demonstrating the **process** — setting up proportions, writing equations, and justifying your reasoning — not just the final number.



**Mission Control says:** Space your 3 missions at least a week apart. Use the days between to review mistakes and study the topics that tripped you up. By Mission 3, you’ll be flying.

# Navigation Protocols

Smart strategies to stay on course during every mission

## The S.C.A.N. Protocol

- S** **Study the question** *Read it fully. Identify what is given and what is being asked.*
- C** **Choose a strategy** *Proportion? Equation? Estimation? Pick your tool before computing.*
- A** **Apply and solve** *Show every step. Label units. Write the equation before plugging in.*
- N** **Navigate back** *Re-read the question. Does your answer match what was asked?*

## Pre-Launch Checklist

- Get a full night's sleep — your brain processes what you studied while you rest.*
- Clear your workspace and gather supplies before you begin.*
- Set a goal: "I'll show my work on every problem today."*

## Green-Light Moves

- Read the entire question before glancing at choices*
- Circle key numbers; underline what is asked*
- Convert fractions, decimals, and percents when it helps*
- Use estimation to check reasonableness*
- Skip tough problems and return with fresh eyes*

### ✖ Red-Alert Traps

- Rushing through word problems
- Forgetting negative signs (rational numbers!)
- Confusing “percent of” with “percent increase”
- Choosing an answer that solves only part of the problem
- Leaving constructed-response blank instead of attempting it



“Every astronaut debriefs after a mission. After each test, review every wrong answer and ask yourself **“What would I do differently next time?”** That single habit will launch your score. ”



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# Math Reference Sheet

You may use this page during your practice tests!

Symbol	Name	What It Means
$( )$	Parentheses	Do this part first. $(3 + 4) \times 2 = 14$
$10^3$	Exponent	Multiply the base by itself that many times. $10^3 = 1,000$
$\frac{a}{b}$	Fraction	$a$ parts out of $b$ equal parts; also means $a \div b$ .
$\frac{7}{3}$	Improper Fraction	Numerator $\geq$ denominator. $\frac{7}{3} = 2\frac{1}{3}$
0.45	Decimal	A number with a decimal point. $0.45 = \frac{45}{100}$
$> < =$	Comparison	Greater than, less than, equal to. $0.5 > 0.35$
$(3,5)$	Ordered Pair	A point on the coordinate plane: $(x, y)$ .

## Key Formulas

- **Volume of a rectangular prism:**

$$V = l \times w \times h$$

- **Order of operations:**

Parentheses  $\rightarrow$  Exponents  $\rightarrow$  Multiply/Divide

$\rightarrow$  Add/Subtract

- **Powers of 10:**

$$10^1 = 10 \quad 10^2 = 100$$

$$10^3 = 1,000 \quad 10^4 = 10,000$$

- **Fraction as division:**

$$\frac{a}{b} = a \div b$$

### Place Value Chart

Millions	1,000,000
Hundred-Thousands	100,000
Ten-Thousands	10,000
Thousands	1,000
Hundreds	100
Tens	10
Ones	1

### Decimals

Tenths	0.1
Hundredths	0.01
Thousandths	0.001

Each place is  $10\times$  the place to its right, and  $\frac{1}{10}$  of the place to its left.

### Key Math Vocabulary

- **Sum** — the result of addition
- **Difference** — the result of subtraction
- **Product** — the result of multiplication
- **Quotient** — the result of division
- **Remainder** — what's left over after dividing
- **Factor** — a number you multiply
- **Expression** — numbers and operations without =
- **Equation** — a math sentence with =
- **Numerator** — the top number of a fraction
- **Denominator** — the bottom number of a fraction
- **Mixed number** — a whole number + a fraction
- **Equivalent fractions** — fractions with equal value
- **Decimal** — a number written with a decimal point
- **Volume** — the space inside a 3D shape
- **Coordinate plane** — a grid with  $x$  and  $y$  axes
- **Ordered pair** —  $(x, y)$  location on the plane

### Word Problem Clue Words

- **Add (+)**: total, altogether, combined, sum, increase, more than
- **Subtract (-)**: difference, how many more, fewer, remain, decrease, left
- **Multiply ( $\times$ )**: each, every, groups of, times, product, per, of (with fractions)
- **Divide ( $\div$ )**: share equally, split, each group, how many groups, quotient, per



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PREVIEW



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PREVIEW

PRACTICE TEST

1

## Practice Test 1

 30 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. A runner covers  $\frac{3}{4}$  mile in  $\frac{1}{4}$  hour at a constant rate. What is  $k$  in miles per hour?

Your Answer:

2. On a map, 4.5 cm represents 36 km. Two parks are 54 km apart. How far apart are they on the map?

Your Answer:

3. A 1 : 60 model car is 7.5 cm long. What is the actual length of the car in meters?

Your Answer:

4. 42 is what percent of 168?

Your Answer:

5. A store buys jeans for \$22 and uses a 100% markup. What is the selling price?

(A) \$22

(B) \$33

(C) \$44

(D) \$122

6. A carpenter estimated a board was 8 feet long. The actual length was 8.5 feet. What is the percent error (rounded to the nearest tenth)?

(A) 5%

(B) 5.9%

(C) 6.3%

(D) 6.7%



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7. Which payment method does NOT involve borrowing money?

- (A) Credit card                      (B) Loan from a bank  
(C) Debit card                      (D) Line of credit

8. Which of the following is NOT an integer?

- (A)  $-5$                                   (B)  $0$   
(C)  $\frac{3}{4}$                                   (D)  $12$

9. Evaluate  $2(a + b) - c$  when  $a = 3$ ,  $b = -1$ , and  $c = 7$ .

Your Answer:

10. Which expression is equivalent to  $-x + 8 + 4x - 5$ ?

- (A)  $3x + 3$                       (B)  $5x + 3$   
(C)  $-3x + 3$                       (D)  $3x + 13$

11. Each side of a square is  $(x + 7)$  cm. The perimeter is 60 cm. What is  $x$ ?

- (A)  $x = 15$                       (B)  $x = 53$   
(C)  $x = 8$                         (D)  $x = 22$

12. Solve  $-0.2n + 5.6 = 4$ .

- (A)  $n = 8$                         (B)  $n = -8$   
(C)  $n = 48$                       (D)  $n = -48$



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13. You have \$60 and spend \$8 per day. You want to have at least \$12 left. Which inequality finds the number of days  $d$  you can spend?

(A)  $60 - 8d \leq 12$

(B)  $60 + 8d \geq 12$

(C)  $60 - 8d \geq 12$

(D)  $8d - 60 \geq 12$

14. A number line shows a closed circle at 10 with shading to the right. Which inequality is graphed?

(A)  $x > 10$

(B)  $x \geq 10$

(C)  $x \leq 10$

(D)  $x < 10$

15. A drawing uses scale 1 : 200. It is redrawn at scale 1 : 100. How does the area on the new drawing compare to the original?

(A) It is 2 times as large

(B) It is 4 times as large

(C) It is half as large

(D) It is the same

16. Marcus wants to draw a triangle with angles  $60^\circ$ ,  $60^\circ$ , and  $60^\circ$  and a side of 4 cm. How many different triangles can he draw?

(A) None

(B) Exactly one

(C) Exactly three

(D) Infinitely many

17. Two sides of a triangle are 9 cm and 12 cm with an included angle of  $60^\circ$ . What type of condition is this?

(A) SSS

(B) SAS

(C) ASA

(D) AAA



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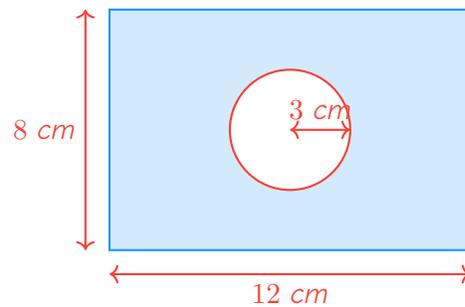
18. A rectangular prism is sliced with a diagonal cut from one edge of the top to the opposite edge of the bottom. What is a possible cross-section?

- (A) Circle  
(B) Triangle  
(C) Hexagon  
(D) Rectangle

19. Two angles are supplementary. One angle is  $115^\circ$ . What is the other angle?

- (A)  $25^\circ$   
(B)  $55^\circ$   
(C)  $65^\circ$   
(D)  $75^\circ$

20. The figure below shows a rectangle with a circular hole. What is the area of the shaded region? Use  $\pi \approx 3.14$ .



Your Answer:

21. What does surface area measure?

- (A) The space inside a 3D figure  
(B) The distance around a 3D figure  
(C) The total area of all faces of a 3D figure  
(D) The height of a 3D figure



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22. What is the volume of a cube with side length 5 m?

- (A)  $15 \text{ m}^3$                       (B)  $25 \text{ m}^3$   
(C)  $125 \text{ m}^3$                       (D)  $150 \text{ m}^3$

23. Which of the following increases the reliability of conclusions drawn from a sample?

- (A) Using a smaller sample                      (B) Using a larger random sample  
(C) Surveying only people who agree with you                      (D) Using a non-random sample

24. If the difference between two group means is more than 2 times the MAD, the difference is generally considered:

- (A) Not meaningful                      (B) Meaningless  
(C) Meaningful                      (D) Impossible to determine

25. Data set: 20, 22, 25, 27, 30, 32, 35. What is the IQR?

- (A) 15                      (B) 10  
(C) 7                      (D) 5

26. A stem-and-leaf plot has 13 leaves. What is the position of the median?

- (A) 6th value                      (B) 7th value  
(C) 6.5th value                      (D) 13th value



27. What is the main advantage of a line graph over a bar graph?

- (A) It can show more categories
- (B) It clearly shows trends and changes over time
- (C) It is easier to draw
- (D) It uses colors

28. Is flipping a fair coin a uniform or non-uniform probability model?

Your Answer:

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29. A spinner has 3 equal sections (A, B, C) and a coin is flipped. What is the probability of landing on B and getting heads?

- (A)  $\frac{1}{2}$
- (B)  $\frac{1}{3}$
- (C)  $\frac{1}{6}$
- (D)  $\frac{2}{3}$

30. A die is used to simulate an event. Rolling 1 or 2 represents "success." What is the probability of success in each trial?

- (A)  $\frac{1}{6}$
- (B)  $\frac{1}{3}$
- (C)  $\frac{1}{2}$
- (D)  $\frac{2}{3}$



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★ *End of Practice Test 1* ★

*Great job finishing the test!*

 **My Score**

*I got \_\_\_\_\_ out of 30 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!*

THANK YOU

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