

# 4

# Alaska AK STAR

## Grade 3

# MATH

## PRACTICE TESTS

Standards-Aligned Practice



### STANDARDS-ALIGNED

Practice to build skills and boost confidence



### 4 FULL-LENGTH TESTS

Realistic questions to prepare for test day



### ANSWER KEYS & EXPLANATIONS

Detailed solutions to learn and improve



# 4 Alaska AK STAR Grade 3 Math Practice Tests

*Standards-Aligned Review with Mixed Practice and Answer Key*



Four focused 30-question missions for Grade 3 math: number facts, fractions, measurement, data, area, shapes, answer keys, and clear explanations for every item.

**Jay Daie and Reza Nazari**



# Copyright ©

## Testinar Inc



Published by Testinar Inc

[Testinar.com](http://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 to the Alaska Math Launch

Four missions, careful work, and a stronger Grade 3 thinker



Read the mission. Show the work. Check the answer. Launch again.

## To the Grade 3 Mission Leader

This book is a four-mission practice launch for the Alaska AK STAR. Each test gives you a fresh chance to multiply, divide, read graphs, compare fractions, measure, find area, and explain math in a way someone else can follow.

Alaska has glacier paths, northern lights, and wide spaces where careful steps matter. Good math uses the same habit: pause, check the details, and move forward with a steady plan.

### Notice

Find the numbers, units, and question before choosing a path.

### Model

Draw an array, number line, table, or quick equation.

### Verify

Ask whether your answer fits the story and the unit.

**Launch promise:** I will slow down at the important moments, show the work I can, and use every miss as a clue for the next mission.

# How to Use This Book

A four-mission routine for steady Grade 3 growth

## 1. Warm Up the System

Read the review pages first. Remind your brain how equal groups, fractions, clocks, graphs, and area models work.

## 2. Fly One Mission

Take one complete 30-question test. Keep your work neat enough that you can check it later.

## 3. Review the Flight

Use the answer key, then pause. A wrong answer is useful when you can name what happened.

## 4. Repair and Relaunch

Rework a few missed questions before starting the next test. The repair step is where the score begins to move.

### A Four-Session Plan

<b>Session 1</b>	Take Test 1 and mark the topics that need attention.
<b>Session 2</b>	Take Test 2 and focus on showing every step clearly.
<b>Session 3</b>	Take Test 3 and watch for units, labels, and two-step problems.
<b>Session 4</b>	Take Test 4 and finish with calm, careful checking.

**Best mission habit:** After checking answers, write one sentence: “Next time I will pay attention to \_\_\_\_\_.”



## Test Overview

### What each Grade 3 math mission asks you to do

Each practice test has 30 questions. Across four tests, you will practice the kind of Grade 3 math thinking used on the Alaska AK STAR: reading carefully, choosing a strategy, doing accurate computation, and explaining enough work to make your answer clear.

#### Multiple Choice

Look for the best answer. Estimate first when you can, cross out choices that do not fit, and reread the question before you choose.

#### Open Response

Write the answer and show the reason. A good Grade 3 response may use a drawing, equation, table, number line, or a few clear words.

#### Math Ideas Inside the Four Tests

- multiplication, division, arrays, missing factors, and two-step word problems
- place value, rounding, addition, subtraction, and multiplying by tens
- unit fractions, number lines, equivalent fractions, and comparing fractions
- time, mass, liquid volume, picture graphs, bar graphs, and line plots
- area, perimeter, unit squares, rectangles, and shape categories

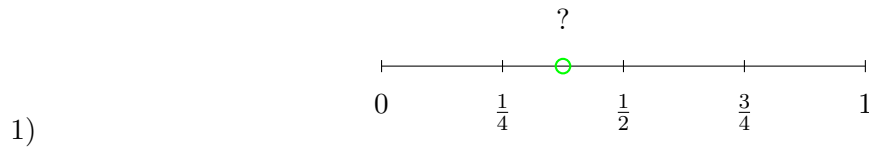
**What strong AK STAR work looks like:** the answer matches the question, the units make sense, and the work is clear enough to check.



Scan me!  
For more practice  
& answers

# Table of Contents

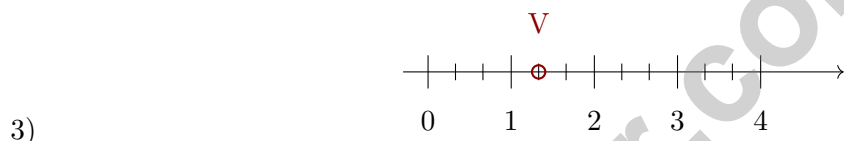
★ Practice Test 1	_____	14
★ Practice Test 2	_____	27
★ Practice Test 3	_____	40
★ Practice Test 4	_____	52
Practice Test Answer Keys	_____	63
Practice Test Answers and Explanations	_____	66



The green dot is halfway between  $\frac{1}{4}$  and  $\frac{1}{2}$ . Which is true?

- A. The dot =  $\frac{1}{4}$
  - B. The dot  $> \frac{1}{2}$  and  $< \frac{3}{4}$
  - C.  $\frac{1}{4} <$  the dot  $< \frac{1}{2}$
  - D. The dot =  $\frac{1}{2}$
- 2) What whole number equals  $\frac{10}{2}$ ?

- A. 2
- B. 5
- C. 10
- D. 3



The number line from 0 to 4 is divided into thirds. Point  $V$  is at the first tick after 1. What improper fraction labels point  $V$ ?

- A.  $\frac{3}{4}$
  - B.  $\frac{5}{3}$
  - C.  $\frac{3}{5}$
  - D.  $\frac{4}{3}$
- 4) Two identical squares are divided into equal parts. Square A has 2 parts shaded out of 4. Square B has 3 parts shaded out of 6. Is the shaded area the same?
- A. Cannot tell without measuring.
  - B. No, Square B is larger.
  - C. Yes, same area.
  - D. No, Square A is larger.

5) Look at the fact family table:

$7 \times 6 = 42$	$6 \times 7 = 42$
$42 \div 7 = 6$	$42 \div 6 = 7$

If one factor is 7 and the product is 42, what is the other factor?

$$7 \times \square = 42$$

A. 8

C. 5

B. 7

D. 6

6) Lily bakes 36 cupcakes. She divides them equally into 4 boxes. She sells 2 boxes. How many cupcakes does she have left?

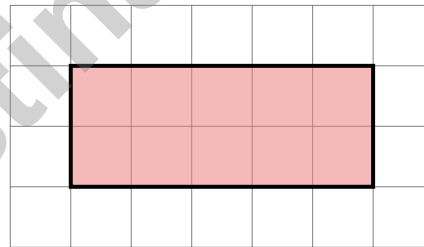
A. 9

C. 27

B. 18

D. 36

7) Look at the unit-square grid below. How many unit squares cover the entire shaded rectangle?



A. 8 square units

C. 12 square units

B. 10 square units

D. 15 square units



Scan me!  
For more practice  
& answers

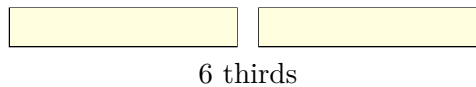
- 8)  $\frac{1}{4} = \frac{2}{\square}$ . What number goes in the box?
- A. 4  C. 8  
 B. 6  D. 10
- 9) Which pair of fractions is equivalent?
- A.  $\frac{1}{3}$  and  $\frac{1}{4}$   C.  $\frac{1}{2}$  and  $\frac{3}{6}$   
 B.  $\frac{2}{8}$  and  $\frac{3}{6}$   D.  $\frac{2}{3}$  and  $\frac{2}{6}$
- 10) Noah has a rectangular piece of paper. It is 9 inches long and 2 inches wide. If he covers it with 1-inch by 1-inch unit squares, how many will he need?
- A. 11 unit squares  C. 18 unit squares  
 B. 14 unit squares  D. 20 unit squares
- 11) Which shape is NOT a quadrilateral?
- A. Parallelogram  C. Rhombus  
 B. Triangle  D. Square
- 12) A line plot shows book weights in ounces: 8,  $8\frac{1}{2}$ , 9,  $9\frac{1}{2}$ , 10. Count from the plot shows 1 X at 8 oz, 2 at  $8\frac{1}{2}$  oz, 3 at 9 oz, 2 at  $9\frac{1}{2}$  oz, and 2 at 10 oz. What is the range?
- A. 1 ounce  C. 2 ounces  
 B.  $1\frac{1}{2}$  ounces  D.  $2\frac{1}{2}$  ounces
- 13) Which strategies would work to count all the unit squares in a  $5 \times 3$  rectangle? Select all that are correct.
- A. Add the rows:  $5 + 5 + 5 = 15$   
 B. Add the columns:  $3 + 3 + 3 + 3 + 3 = 15$   
 C. Count by rows of 3:  $3 + 3 + 3 + 3 + 3 = 15$   
 D. Count only one row: 5 squares  
 E. Add the length and width:  $5 + 3 = 8$



1) A sports team scored 234 points in the first game and 189 points in the second game. Which statement about the difference is correct?

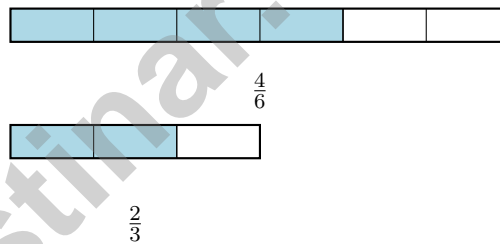
- A.  $234 - 189 = 45$ ; the team scored 45 more points in the first game
  C.  $189 - 234 = 45$ ; the team scored 45 more points in the second game
- B.  $234 - 189 = 55$ ; the team scored 55 more points in the first game
  D.  $234 + 189 = 423$ ; the team scored 423 points in both games

2) What whole number equals  $\frac{6}{3}$ ? Use the bar diagram to help.



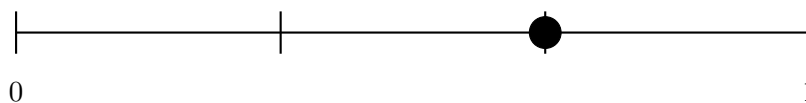
- A. 3
  C. 6
- B. 1
  D. 2

3) Which fraction is equivalent to  $\frac{4}{6}$ ?



- A.  $\frac{1}{3}$ 
 C.  $\frac{1}{2}$
- B.  $\frac{2}{3}$ 
 D.  $\frac{3}{4}$

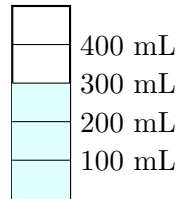
4) On a number line from 0 to 1 with 3 equal parts, the second tick mark from 0 represents which fraction?



- A.  $\frac{1}{3}$ 
 C.  $\frac{2}{2}$
- B.  $\frac{2}{3}$ 
 D.  $\frac{3}{2}$



Scan me!  
For more practice  
& answers

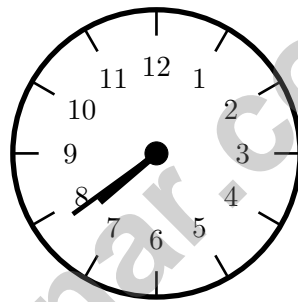


5)

The beaker shows liquid to the 300 mL mark. If we pour out half the liquid, how much remains?

 A. 100 mL C. 200 mL B. 150 mL D. 300 mL

6) What time does the clock show?

 A. 6 : 39 C. 8 : 09 B. 7 : 50 D. 7 : 39

7) Sam counted 254 stickers. To estimate, he rounds to the nearest 10. What is the rounded number?

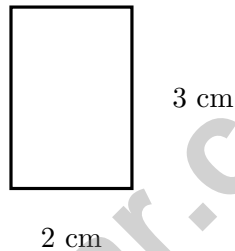
 A. 250 C. 260 B. 254 D. 300

## Subtraction Problem

1)

Hundreds	Tens	Ones
6	4	2
–	–	–
2	1	5

Using the place-value chart, what is  $642 - 215$ ?

 A. 427 C. 527 B. 437 D. 447

2)

What is the area of this rectangle?

 A. 5 sq cm C. 8 sq cm B. 6 sq cm D. 12 sq cm

3) Mia puts 36 stickers into a scrapbook. She puts 6 stickers on each page. How many pages does she fill?

 A. 5 C. 30 B. 42 D. 6

4) A rectangle has length 5 cm and width 3 cm. Does a rhombus with all sides 5 cm have the same shape as this rectangle?

- A. Yes, because both have sides that are 5 cm
- B. Yes, because both shapes are quadrilaterals
- C. Yes, because all quadrilaterals are the same
- D. No, because they have different properties

5) A rectangular game board is 5 inches long and 4 inches wide. What is the area of the game board?

6) Otto divides 72 items into 8 equal groups. To find how many items in each group, which multiplication helps him?

- A.  $8 \times 8 = 64$
- B.  $10 \times 8 = 80$
- C.  $9 \times 7 = 63$
- D.  $8 \times 9 = 72$

7) Write a fraction equivalent to  $\frac{1}{2}$ .



Scan me!  
For more practice  
& answers

## Practice Test Answer Keys

**How to use this section with a Grade 3 student:**

1. check the answer first
2. mark questions to try again
3. rework the problem before reading the full explanation

**A calm correction routine turns every missed item into useful practice.**

Testinar.com



Scan me!  
For more practice  
& answers

## Practice Test Answers and Explanations

### Practice Test 1 Answers and Explanations

- Choice C is correct.** **(3.NF.A.3d)** The green dot is halfway between  $\frac{1}{4}$  and  $\frac{1}{2}$ , so it is at  $\frac{3}{8}$ . This means  $\frac{1}{4} < \frac{3}{8} < \frac{1}{2}$ .
- Choice B is correct.** **(3.NF.A.3c)**  $10 \text{ halves} \div 2 \text{ halves per whole} = 10 \div 2 = 5 \text{ wholes}$ .
- Choice D is correct.** **(3.NF.A.2b)** Each whole number spans 3 ticks. From 0, the tick at position  $1\frac{1}{3}$  is the 4th tick, which is  $\frac{4}{3}$ .
- Choice C is correct.** **(3.NF.A.3a)**  $\frac{2}{4} = \frac{3}{6} = \frac{1}{2}$ . Both show one-half of their squares shaded.
- Choice D is correct.** **(3.OA.A.4)** From the fact family,  $7 \times 6 = 42$ .
- Choice B is correct.** **(3.OA.D.8)** Step 1: Divide:  $36 \div 4 = 9$  cupcakes per box. Step 2: Find unsold:  $4 - 2 = 2$  boxes left, which is  $2 \times 9 = 18$  cupcakes. (Choice A is step 1 only.)
- Choice B is correct.** **(3.MD.C.5)** The shaded rectangle is 5 units wide and 2 units tall.  $5 \times 2 = 10$  square units.
- Choice C is correct.** **(3.NF.A.3b)** The numerator was multiplied by 2 (from 1 to 2). Multiply the denominator by 2:  $4 \times 2 = 8$ . So  $\frac{1}{4} = \frac{2}{8}$ .
- Choice C is correct.** **(3.NF.A.3)**  $\frac{1}{2}$  and  $\frac{3}{6}$  both equal half of a whole.
- Choice C is correct.** **(3.MD.C.5a)** Area =  $9 \text{ in} \times 2 \text{ in} = 18 \text{ square inches} = 18 \text{ unit squares}$ .
- Choice B is correct.** **(3.G.A.1)** A triangle has 3 sides. A quadrilateral has 4 sides, so a parallelogram, rhombus, and square are all quadrilaterals, but a triangle is not.
- Choice C is correct.** **(3.MD.B.4)** Range = maximum - minimum =  $10 - 8 = 2$  ounces.
- Choices A, B, and C are correct.** **(3.MD.C.6)** Strategies A, B, and C all use repeated addition (skip-counting) to count all 15 unit squares. D counts only one row, and E adds the sides (which is perimeter, not area).
- Choice B is correct.** **(3.MD.C.7c)** The expanded distributive equation adds the two smaller rectangle areas:  $(10 \times 3) + (10 \times 7) = 30 + 70 = 100$ .
- Choice B is correct.** **(3.G.A.2)**  $\frac{2}{3}$  of a square divided into 3 parts means coloring 2 parts.
- Choice D is correct.** **(3.NBT.A.3)** The chart shows 9 tens and 0 ones, which represents  $9 \times 10 = 90$  coins.
- Choice B is correct.** **(3.NF.A.2)** The dot on Line A is at  $\frac{1}{2}$ . The dot on Line B is at  $\frac{2}{4}$ , which equals  $\frac{1}{2}$ . Both mark the same location.
- The correct answer is 623.** **(3.NBT.A.2)** Ones:  $5 + 8 = 13$  (write 3, carry 1). Tens:  $7 + 4 + 1 = 12$  (write 2, carry 1). Hundreds:  $3 + 2 + 1 = 6$ . Final answer: 623.
- Choice B is correct.** **(3.MD.A.2)** Subtract:  $4000 - 2500 = 1500 \text{ mL}$ .
- Choice D is correct.** **(3.OA.B.6)** In a fact-family triangle, the product is at the top and the factors are at the bottom. If  $4 \times 6 = 24$ , then  $24 \div 4 = 6$ . The factors are the answers when dividing.
- Choice A is correct.** **(3.NBT.A.1)** The ones digit is 2. Since  $2 < 5$ , round down: 662 rounds to 660.
- Choice B is correct.** **(3.MD.C.5b)**  $8 \times 4 = 32$  square units.
- Choice D is correct.** **(3.OA.B.5)** The commutative property of multiplication states that  $a \times b = b \times a$ . This is why  $9 \times 2 = 2 \times 9 = 18$ .
- Choice D is correct.** **(3.OA.C.7)**  $5 \times 6 = 30$  is correct. The other answers are:  $3 \times 6 = 18$ ,  $8 \times 5 = 40$ , and  $9 \times 3 = 27$ .
- The correct answer is 4 : 13.** **(3.MD.A.1)**  $4 : 52 - 39$  minutes is 4 : 13.
- Choice C is correct.** **(3.MD.B.3)** Red:  $2 \times 3 = 6$ . Yellow:  $4 \times 3 = 12$ . Total:  $6 + 12 = 18$ .
- Choice C is correct.** **(3.MD.C.7d)** Left:  $6 \times 5 = 30$  sq ft. Right:  $4 \times 3 = 12$  sq ft. Total:  $30 + 12 = 42$  sq ft.
- Choice A is correct.** **(3.OA.A.2)** The picture shows 18 items shared into 3 equal groups of 6 each. So  $18 \div 3 = 6$ .
- The correct answer is 3.** **(3.NF.A.2a)** The denominator 3 tells us there are 3 equal parts total.
- Choice A is correct.** **(3.MD.C.7)** The grid has 8 columns and 5 rows. Area =  $8 \times 5 = 40$  square units. You can also add:  $8 + 8 + 8 + 8 + 8 = 40$  (five rows of eight).



**A Note From Your Math Friend**

---

**Hi, Math Star!**

◇ Wow! You finished 4 full practice tests. That is a LOT of math problems. You worked hard, and your brain got stronger every time. ◇

★ **Here is a big idea:** mistakes are okay! Every time you got something wrong, you got smarter. Through 4 tests, you learned that trying is the most important thing. ★

**Look What You Did!**

- **Hard Worker:** You did not give up!
- **Smart Thinker:** You used your math tools.
- **Brave Learner:** You tried hard problems.
- **Test Ready:** You feel proud and prepared.

**Big tip for test day:** take your time. Read each problem twice. Show your work. Check your answer. You can do this!

If you want to share something or ask a question, please email me at [jay@testinar.com](mailto:jay@testinar.com).

**Jay Daie**

Your Math Friend

Testinar.com

# Build Skills. Achieve More.

This book gives **Grade 3** students the focused practice they need to master math concepts with confidence.

## What's Inside?



### Standards-Aligned Practice

Questions designed to match Grade 3 math standards.



### Variety of Question Types

Build skills with multiple formats and challenges.



### Real-World Applications

Engaging problems that connect math to life.



### Step-by-Step Progress

Track improvement and see growth over time.



### Build Skills & Boost Confidence

Strengthen understanding and perform better.

## COVERS ALL ESSENTIAL TOPICS

- ✓ Whole Numbers & Operations
- ✓ Fractions & Decimals
- ✓ Algebraic Thinking
- ✓ Geometry
- ✓ Measurement & Data
- ✓ Number Patterns
- ✓ Word Problems
- ✓ Ratio & Proportion
- ✓ Perimeter, Area & Volume
- ✓ Graphing & Data Analysis
- ✓ And More!



More Grade 3 Math Resources  
& Practice Materials

[testinar.com/math3](https://testinar.com/math3)



**PRACTICE. PREPARE. SUCCEED.**