

# Texas STAAR EOC Grade 9 Math Quizzes

*Quick Topic Assessments with Answer Key*

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QUICK QUIZZES FOR EVERY TOPIC

# Algebra 1 Math Quizzes

Topic Quizzes • Chapter Reviews • Answer Key

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*Quick, focused quizzes are one of the best ways to find out what you really know — and what you still need to work on.*

*This book has a short quiz for every Algebra 1 topic. Each one takes about 10–15 minutes and covers the most important skills for that section. Take a quiz, score it, and see exactly where you stand.*

*Use it after studying a topic, the night before a test, or anytime you want a fast check-in on your algebra skills.*



## Take the Quiz

*10–15 minutes  
per quiz*



## Score It

*Check every answer  
in the key*



## Review & Retry

*Study what you missed  
then quiz again*

# How to Use This Book

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**1** *Pick a topic you've been studying*

*Look through the table of contents and find the quiz that matches the topic you just covered in class or in your study guide.*

**2** *Set a timer for 10–15 minutes*

*Give yourself a reasonable time limit. Working with a timer helps you build speed and stay focused — just like a real test.*

**3** *Answer every question*

*Try each problem. If you get stuck, skip it and come back at the end. Don't leave any question blank — a good guess is better than no answer.*

**4** *Check your answers*

*Use the answer key in the back. Mark each question right or wrong. Write your score on the quiz page and track your progress over time.*

**5** *Review what you missed*

*Go back to the problems you got wrong. Read the topic explanation, study the method, then try the quiz again in a few days. Your score should improve every time.*

# Track Your Scores

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Every quiz in this book has a **Name / Date / Score** bar at the top. After you finish a quiz, check your answers using the answer key in the back, then write your score on that bar.

## ★ How to Track Your Progress

- 1 Write your score on the quiz page right after you grade it.
- 2 Circle any quiz where you scored below 70 %.
- 3 Review the topic, then retake the quiz in a few days.
- 4 Compare your scores — you'll see improvement every time!

💡 **Tip:** Your score should go up every time you retake a quiz. That's how you know you're learning!

✎ Use the score bar on each quiz page to record your results.

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CHAPTER

1

# Foundations of Algebra

## ★ What's Inside ★

1.1 Classifying Real Numbers .....	2
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## ★ 1.1 Classifying Real Numbers ★

### 🎯 Learning Goals

- Classify numbers into all applicable real number subsets
- Describe how the number subsets nest inside each other

### 🎓 The Real Number Subsets

Every number belongs to one or more subsets of the **real numbers**:

- **Natural numbers:**  $1, 2, 3, \dots$  (counting numbers)
- **Whole numbers:**  $0, 1, 2, 3, \dots$  (naturals plus zero)
- **Integers:**  $\dots, -2, -1, 0, 1, 2, \dots$  (whole numbers and negatives)
- **Rational numbers:** any  $\frac{a}{b}$  where  $a, b$  are integers and  $b \neq 0$
- **Irrational numbers:** decimals that never end and never repeat ( $\sqrt{2}, \pi$ )

These sets nest like rings in a **Venn diagram**:

$\text{Natural} \subset \text{Whole} \subset \text{Integer} \subset \text{Rational} \subset \text{Real}$

Irrational numbers sit beside Rational, inside Real. Every real number is either rational **or** irrational—never both.

### ✏️ Classify Into All Subsets

Place each number in **every** subset that applies.

1. 7: Natural, Whole, Integer, Rational, Real
2. 0: Whole, Integer, Rational ( $\frac{0}{1}$ ), Real
3.  $-3$ : Integer, Rational ( $\frac{-3}{1}$ ), Real
4.  $\frac{2}{3} = 0.\bar{6}$ : Rational (repeats), Real
5.  $0.75 = \frac{3}{4}$ : Rational (terminates), Real



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6.  $\pi = 3.14159\dots$ : Irrational, Real

7.  $\sqrt{3} = 1.732\dots$ : Irrational, Real

### Rational Numbers

- Written as  $\frac{a}{b}$ ,  $b \neq 0$
- Decimals terminate or repeat
- Examples:  $\frac{3}{4}$ ,  $-2$ ,  $0.\bar{6}$

### Irrational Numbers

- Cannot be written as  $\frac{a}{b}$
- Decimals never terminate or repeat
- Examples:  $\sqrt{2}$ ,  $\pi$ ,  $\sqrt{10}$



“ Every integer is rational! Write it over 1:  $-5 = \frac{-5}{1}$ ,  $0 = \frac{0}{1}$ . ”

## Classifying Real Numbers

1. Classify  $-7$  into all applicable subsets.
2. Classify  $\sqrt{3}$  into all applicable subsets.
3. Classify  $0.75$  into all applicable subsets.
4. List all subsets for  $\sqrt{25}$ .
5. Every whole number is also a rational number.

True  False



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CHAPTER

2

# Introduction to Functions

## ★ What's Inside ★

2.1 What Is a Function? .....	5
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## ★ 2.1 What Is a Function? ★

### 🎯 Learning Goals

- Decide whether a relation is a function using multiple representations
- Represent relations as ordered pairs, tables, mapping diagrams, and graphs

### 🎓 What Is a Function?

A **relation** is any set of ordered pairs  $(x, y)$ .

A **function** is a relation where every input  $(x)$  gives exactly one output  $(y)$ . No  $x$ -value may repeat with a different  $y$ -value.

Ways to represent a relation:

- **Set of ordered pairs:**  $\{(1, 4), (2, 5), (3, 6)\}$
- **Table:** inputs in one row, outputs in another
- **Mapping diagram:** arrows from each input to its output
- **Graph:** points or curves on a coordinate plane

A relation is **discrete** if it has separate, countable points. A relation is **continuous** if it has a connected line or curve.

### ✏️ Checking Multiple Representations

Is the relation  $\{(1, 5), (2, 8), (3, 10), (1, 7)\}$  a function?

**Ordered pairs:**  $x = 1$  appears twice with outputs 5 and 7.

**Mapping diagram:** 1 has two arrows ( $1 \rightarrow 5$  and  $1 \rightarrow 7$ ).

One input gives two outputs, so this is **not a function**.



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## The Vertical Line Test

- 1 Draw or look at the graph of the relation.
- 2 Slide a vertical line across the graph from left to right.
- 3 If the line ever hits **two or more points**, it is **not** a function.
- 4 If every vertical line hits at most one point, it **is** a function.



“ A function is like a rule: one question, one answer. In a mapping diagram, each input gets exactly one arrow! ”



**TIP**

Two different inputs **can** share the same output and still be a function. Only repeated inputs with different outputs break the rule.

## What Is a Function?

1. Is  $\{(2, 4), (3, 6), (4, 8), (5, 10)\}$  a function?
2. Is  $\{(1, 3), (2, 5), (1, 7)\}$  a function?
3. A mapping diagram shows  $3 \rightarrow 9$ ,  $4 \rightarrow 16$ ,  $5 \rightarrow 9$ . Is it a function?
4. Is the relation  $\{(1, 2), (3, 4), (5, 6)\}$  discrete or continuous?
5. Every function is a relation.

True  False



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# *Answer Key & Explanations*



## Answer Key

First try each quiz on your own, then check your work here.

0 Integer, Rational, Real

0 Irrational, Real

0 Rational, Real

0 Nat, Whole, Int, Rat, Real

0 True

0 Yes

0 No

0 Yes

0 Discrete

0 True

### Explanations

0  $-7$  is negative, so not natural or whole. It is an integer. Since  $-7 = \frac{-7}{1}$ , it is also rational.

0  $3$  is not a perfect square.  $\sqrt{3}$  is a non-repeating, non-terminating decimal—irrational and real.

0  $0.75 = \frac{3}{4}$ , a terminating decimal. Rational and real, but not an integer.

0  $\sqrt{25} = 5$ . Since  $5$  is a counting number, it belongs to every subset except irrational.

0 Each input appears only once. Every  $x$ -value maps to exactly one  $y$ -value.

0  $x = 1$  maps to both  $3$  and  $7$ . One input gives two outputs.

0 Each input maps to one output. Two inputs may share an output—that is still a function.

0 The relation is a set of separate points. Discrete means individual, countable points.



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**Well done checking your answers!**

*Keep practicing to strengthen your skills.*

PREVIEW



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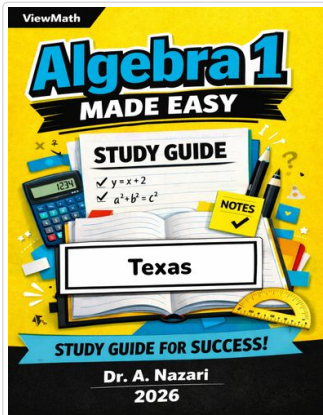


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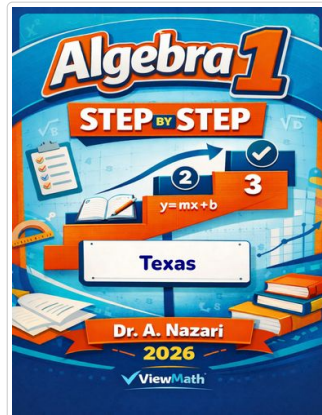
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Study Guide



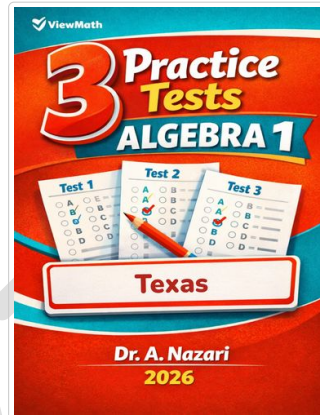
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Step-by-Step



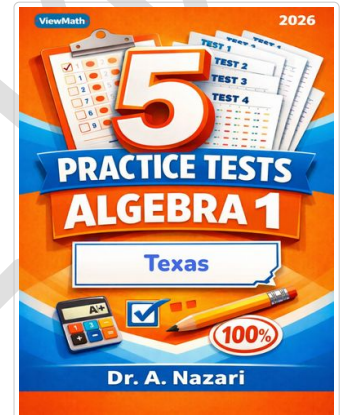
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3 Practice Tests



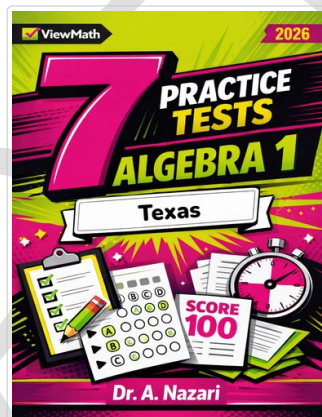
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5 Practice Tests



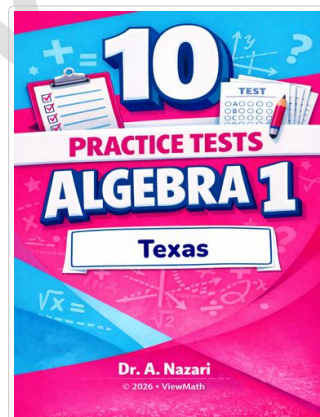
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7 Practice Tests



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10 Practice Tests



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