STAAR CONNECTION™

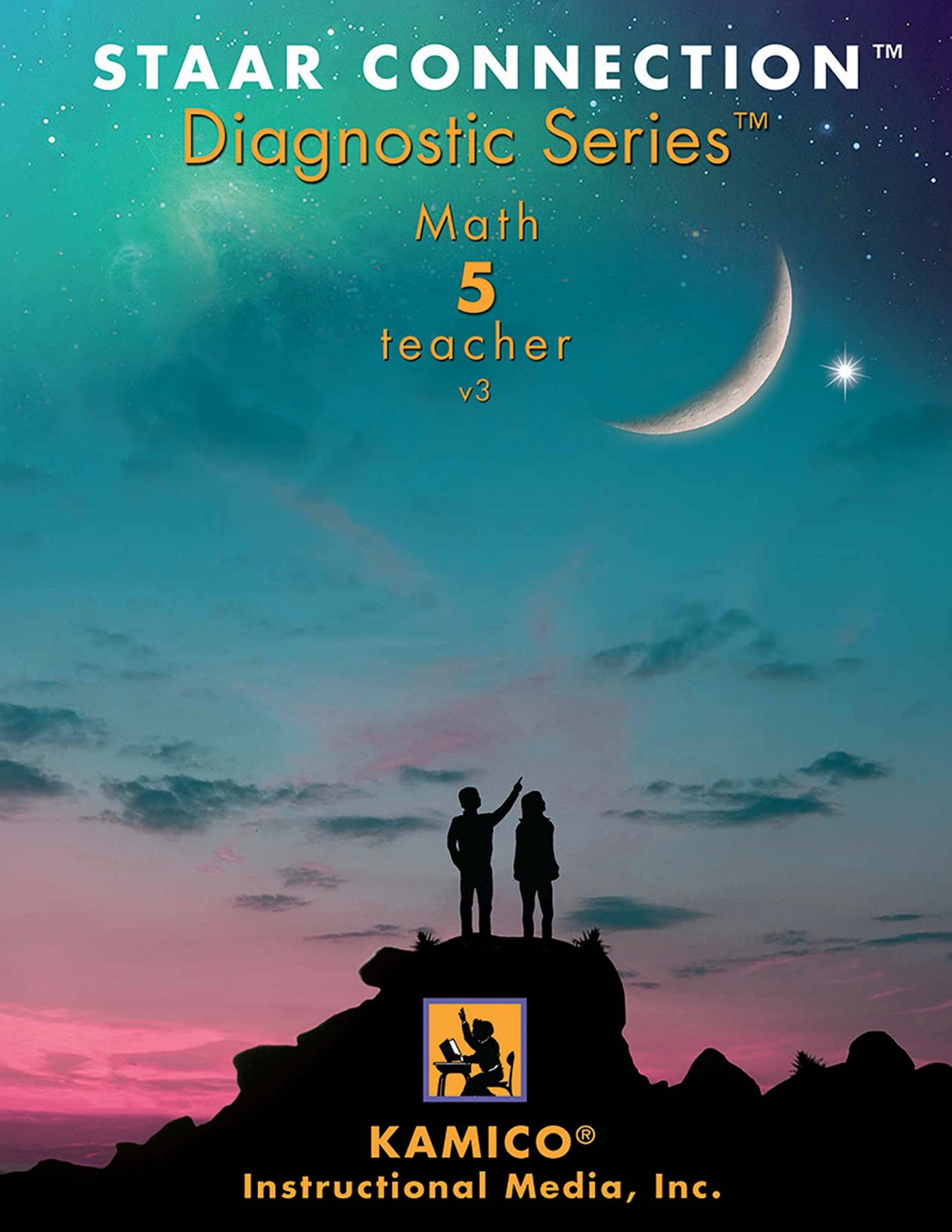
Diagnostic Series™

Math

5

teacher

v3



KAMICO®
Instructional Media, Inc.

STAAR CONNECTION™

Math
5
teacher

Diagnostic Series™

XXI/vii/MMXXIII
Version 3

KAMICO®
Instructional Media, Inc.

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KAMICO® Instructional Media, Inc.
STAAR CONNECTION™
Introduction

KAMICO® Instructional Media's program is validated by scientifically based research. **STAAR CONNECTION™ Diagnostic Series™** and **Developmental Series™** can be used in tandem to ensure mastery of Texas reporting categories and TEKS. The *Diagnostic Series™* consists of a bank of assessments. Each assessment covers a mixture of reporting categories and TEKS. This research-based format provides continual reinforcement for and ensures retention of mastered concepts. To take full advantage of this series, administer an assessment to students. After they have completed the assessment, use it as an instructional tool. Go over each item with the class, discussing all correct and incorrect answers. Then, use the assessment as a diagnostic tool to determine a standard for which students need remediation. Find that standard in the *Developmental Series™*.

Each book in the *STAAR CONNECTION Developmental Series™* consists of isolated activities and assessments to allow for the development of specific TEKS. For every TEKS, there is at least one individual or group activity. The activities provide a fun, challenging, yet nonthreatening, way to develop mastery of the TEKS. In addition to these activities, each *Developmental Series™* book has assessments on isolated standards to be used to identify mastery or the need for further skill development or reinforcement. Continue to alternate between the *STAAR CONNECTION™ Diagnostic Series™* and the *Developmental Series™*.

KAMICO's **DATA CONNECTION®** software prints student answer sheets on plain paper using a standard laser printer, scans answer sheets using a TWAIN-compliant scanner, scores assessments, and disaggregates student academic data, showing which goals and objectives are mastered and which goals and objectives are in need of reinforcement. The software is preprogrammed to work with all KAMICO® assessments. It is easily customized to work with other instructional materials and assessments as well as teacher-, school-, district-, or state-created assessments. DATA CONNECTION® analyzes academic data from individual students, classes, grade levels, and demographic groups. Reports are presented in tabular and graphic form. Item analysis is provided to help determine the most effective method of instruction.

KAMICO® Instructional Media, Inc., supports efforts to ensure adequate yearly progress and eliminate surprises in high-stakes test results.

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STAAR CONNECTION™
Diagnostic Series™
Grade 5 Math
Table of Contents

Reporting Categories and Related TEKS
Grade 5 Mathematics

Mathematical Process Standards

These student expectations will not be listed under a separate reporting category. Instead, they will be incorporated into test questions across reporting categories since the application of mathematical process standards is part of each knowledge statement.

(5.1) **Mathematical process standards**. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to

(A) apply mathematics to problems arising in everyday life, society, and the workplace;

(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

(E) create and use representations to organize, record, and communicate mathematical ideas;

(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Reporting Category 1:
Numerical Representations and Relationships

The student will demonstrate an understanding of how to represent and manipulate numbers and expressions.

(5.2) **Number and operations**. The student applies mathematical process standards to represent, compare, and order positive rational numbers and understand relationships as related to place value. The student is expected to

(A) represent the value of the digit in decimals through the thousandths using expanded notation and numerals; **Supporting Standard**

(B) compare and order two decimals to thousandths and represent comparisons using the symbols >, <, or =; and **Readiness Standard**

(C) round decimals to tenths or hundredths. **Supporting Standard**

(5.4) **Algebraic reasoning**. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to

(A) identify prime and composite numbers; **Supporting Standard**

(E) describe the meaning of parentheses and brackets in a numeric expression; and **Supporting Standard**

(F) simplify numerical expressions that do not involve exponents, including up to two levels of grouping. **Readiness Standard**

Reporting Category 2:
Computations and Algebraic Relationships

The student will demonstrate an understanding of how to perform operations and represent algebraic relationships.

(5.3) **Number and operations**. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. The student is expected to

(A) estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division; **Supporting Standard**

(B) multiply with fluency a three-digit number by a two-digit number using the standard algorithm; **Supporting Standard**

(C) solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm; **Supporting Standard**

(D) represent multiplication of decimals with products to the hundredths using objects and pictorial models, including area models; **Supporting Standard**

(E) solve for products of decimals to the hundredths, including situations involving money, using strategies based on place-value understandings, properties of operations, and the relationship to the multiplication of whole numbers; **Readiness Standard**

(F) represent quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using objects and pictorial models, including area models; **Supporting Standard**

(G) solve for quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using strategies and algorithms, including the standard algorithm; **Readiness Standard**

(H) represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operations; **Supporting Standard**

(I) represent and solve multiplication of a whole number and a fraction that refers to the same whole using objects and pictorial models, including area models; **Supporting Standard**

(J) represent division of a unit fraction by a whole number and the division of a whole number by a unit fraction such as 1/3 ÷ 7 and 7 ÷ 1/3 using objects and pictorial models, including area models; **Supporting Standard**

(K) add and subtract positive rational numbers fluently; and **Readiness Standard**

(L) divide whole numbers by unit fractions and unit fractions by whole numbers. **Readiness Standard**

(5.4) **Algebraic reasoning**. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to

(B) represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity; **Readiness Standard**

(C) generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph; and **Readiness Standard**

(D) recognize the difference between additive and multiplicative numerical patterns given in a table or graph. **Supporting Standard**

Reporting Category 3:
Geometry and Measurement

The student will demonstrate an understanding of how to represent and apply geometry and measurement concepts.

(5.4) **Algebraic reasoning**. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to

(H) represent and solve problems related to perimeter and/or area and related to volume. **Readiness Standard**

(5.5) **Geometry and measurement**. The student applies mathematical process standards to classify two-dimensional figures by attributes and properties. The student is expected to

(A) classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties. **Readiness Standard**

(5.6) **Geometry and measurement.** The student applies mathematical process standards to understand, recognize, and quantify volume. The student is expected to

(A) recognize a cube with side length of one unit as a unit cube having one cubic unit of volume and the volume of a three-dimensional figure as the number of unit cubes (*n* cubic units) needed to fill it with no gaps or overlaps if possible; and **Supporting Standard**

(B) determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base. **Supporting Standard**

(5.7) **Geometry and measurement**. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving measurement. The student is expected to

(A) solve problems by calculating conversions within a measurement system, customary or metric. **Supporting Standard**

(5.8) **Geometry and measurement**. The student applies mathematical process standards to identify locations on a coordinate plane. The student is expected to

(A) describe the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0); the *x*-coordinate, the first number in an ordered pair, indicates movement parallel to the *x*-axis starting at the origin; and the *y*-coordinate, the second number, indicates movement parallel to the *y*-axis starting at the origin; **Supporting Standard**

(B) describe the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane; and **Supporting Standard**

(C) graph in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table. **Readiness Standard**

Reporting Category 4:
Data Analysis and Personal Financial Literacy

The student will demonstrate an understanding of how to represent and analyze data and how to describe and apply personal financial concepts.

(5.9) **Data analysis**. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to

(A) represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots; **Supporting Standard**

(B) represent discrete paired data on a scatterplot; and **Supporting Standard**

(C) solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot. **Readiness Standard**

(5.10) **Personal financial literacy**. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to

(A) define income tax, payroll tax, sales tax, and property tax; **Supporting Standard**

(B) explain the difference between gross income and net income; **Supporting Standard**

(E) describe actions that might be taken to balance a budget when expenses exceed income; and **Supporting Standard**

(F) balance a simple budget. **Supporting Standard**

Name _____ Date _____

DIRECTIONS

Read each question carefully. Choose the best answer to each question. For open-response questions, determine the best answer to the question.

1 Samantha and 5 of her friends are looking for weird science facts. During a search on the web, Samantha discovers the claim that if a person drilled a tunnel through Earth and jumped in, it would take 42 minutes and 12 seconds to fly out the other side. Which **TWO** statements are true?

- ◯ 42 is a prime number, and 12 is a composite number.
- ◯ 42 is a composite number, and 12 is a composite number.
- ◯ 5 is a prime number, and 42 is a composite number.
- ◯ 5 is a prime number, and 12 is a prime number.
- ◯ 42 is a composite number, and 12 is a prime number.

---

2 Kayne and his parents are traveling to his grandparents' house for Christmas. When they first left home, the roads were icy, so they could drive only 30 miles per hour for the first 2 hours of the trip. Road conditions greatly improved, and the next 3 hours were traveled at an average speed of 60 miles per hour. After traveling for these 5 hours, they stopped and spent $1\frac{1}{2}$ hours in a restaurant before continuing the drive. If the distance from Kayne's house to his grandparents' house is 280 miles, which expression can be used to determine how many more miles Kayne's family has to travel after leaving the restaurant?

Ⓐ The expression 280 – [(2 × 30) + (3 × 60)] can be used to find the remaining distance to Kayne's grandparents' house. To solve the expression, first multiply 2 and 30, and then subtract the product from 280. Next multiply 3 and 60. Add the two numbers, the sum of which gives the number of miles remaining.

Ⓑ The expression 280 – [(2 × 30) + (3 × 60) + $1\frac{1}{2}$] can be used to find the remaining distance to Kayne's grandparents' house. To solve the expression, multiply 2 and 30. Next multiply 3 and 60. Now add these products. Subtract the sum from 280 to find the number of miles remaining.

Ⓒ The expression 280 – [(2 + 3 + $1\frac{1}{2}$) × $\frac{(30 + 60)}{2}$] can be used to find the remaining distance to Kayne's grandparents' house. To solve the expression, first add 2, 3, and $1\frac{1}{2}$. Next add 30 and 60. Next multiply the sum of 2, 3, and $1\frac{1}{2}$ by the sum of 30 and 60. Divide the result by 2. Subtract that result from 280 to find the number of miles remaining.

Ⓓ The expression 280 – [(2 × 30) + (3 × 60)] can be used to find the remaining distance to Kayne's grandparents' house. To solve the expression, first multiply 2 and 30. Next multiply 3 and 60. Add these two products. Then, subtract that sum from 280 to find the number of miles remaining.

Solve to find how many more miles Kayne's family has left to travel after leaving the restaurant. Record your answer in the space below.

GO ON

3 Carlos plans to cook breakfast for his parents. He has the following chopped ingredients.

Chopped Ingredients
$\frac{3}{4}$ cup mushrooms
$\sim\frac{1}{4}$ cup black olives
$1\frac{1}{3}$ cups green bell peppers
$\sim$1 cup sweet onions
$\sim 1\frac{3}{4}$ cups cheese
1 cup ham

$\sim$ = approximately

Estimate the number of cups of ingredients that Carlos has. (Hint: Round all measurements to the nearest cup.) Record your answer in the space below. Show how you arrive at your answer.

4 Susan owns a bakery. The chart shows the doughnuts Susan makes and the cost of the doughnuts.

Susan's Doughnuts

Type of Doughnut	Baker's Dozen (Bag of 13)	Single	Number Made Today
Glazed	$10	$1	155
Chocolate	$12	$1.25	120
Iced	$18	$1.45	100

Susan sells all the bags of glazed doughnuts that can be filled. Create an equation that can be used to determine how many bags of glazed doughnuts and how many single glazed doughnuts Susan sells.

☐ ÷ ☐ = ☐ with ☐ remaining.

Susan's glazed doughnut sales total —

Ⓐ $122

Ⓑ $124

Ⓒ $131

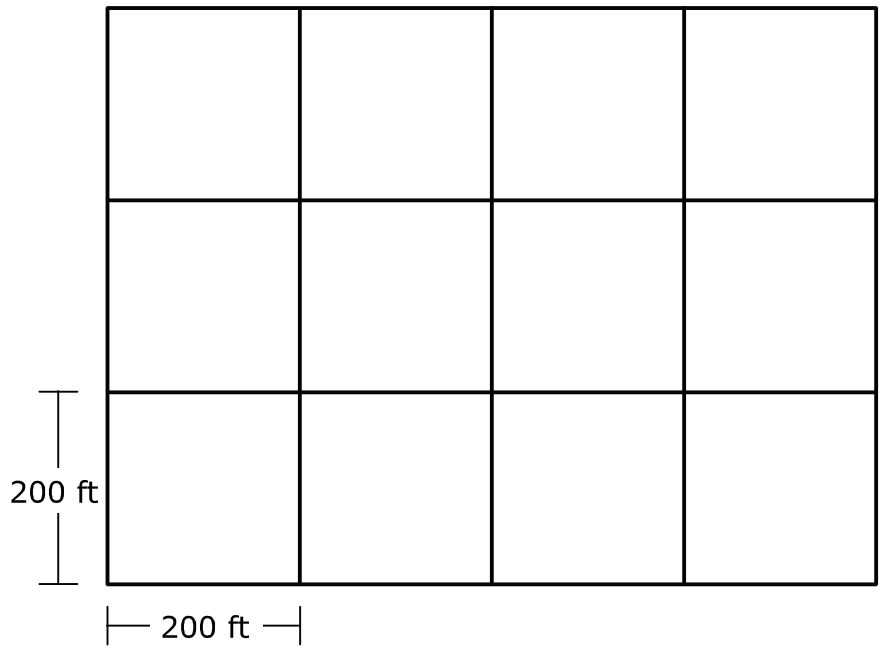
Ⓓ Not Here

GO ON

5 Quan's mom is planting wildflower seeds in her front pasture.

Coverage	1 Pound of Seed
lush stand (almost solid flowers)	1,500 sq ft
acreage display (good coverage)	2,000 sq ft
meadow look (scattered flowers)	4,000 sq ft

The diagram represents the pasture that Quan's mom will be planting with wildflower seeds.



How many pounds of wildflower seed will Quan's mom need for good coverage of the pasture?

Ⓐ 2.4 lb

Ⓑ 20 lb

Ⓒ 200 lb

Ⓓ 240 lb

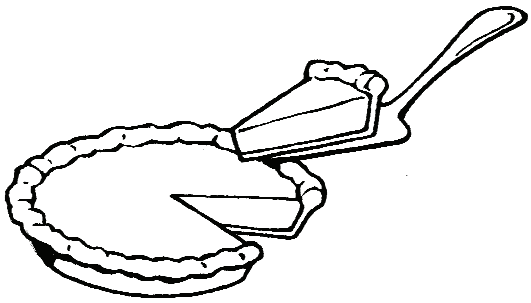
6 Ms. Guzman is helping create props for a school play. She buys 10 different colors of paint. The paint sells for $15.98 a can. Each can holds 1 quart of paint. Ms. Guzman is going to pour the paint into containers for students to use to paint the props. Each student will get 1 cup of each color of paint. How many cups of paint will Ms. Guzman be able to pour from each quart of paint?

Record your answer in the space below. Show how you determine your answer.

GO ON

7 Marty was hurt in a bicycle accident. He needs physical therapy. His friend Gabriel plans a pie-eating contest. Any money made will help pay for Marty's physical therapy. People donate pies for the contest. The contestants eat as much pie as they can. Sponsors pay for each slice of pie the contestants eat. Following is a table showing the number of slices of pie each contestant ate.

Contestant	Number of Slices of Pie
Shelby	10
Aria	16
Grady	3
Henry	11
Ryan	23
Samantha	26
Makayla	14
Luke	42
Sophia	20
Shortie	11
Jayce	24



Complete the stem-and-leaf plot to accurately represent the number of slices of pie the contestants ate. Not all spaces will be used.

Slices of Pie

Stem	Leaf
0	☐ ☐ ☐ ☐ ☐
1	☐ ☐ ☐ ☐ ☐
2	☐ ☐ ☐ ☐ ☐
3	☐ ☐ ☐ ☐ ☐
4	☐ ☐ ☐ ☐ ☐

8 George wants to begin keeping a budget. He wants to plan how he saves and how he spends his money. George starts to prepare his budget by tracking his monthly spending.

Monthly Expenses	
Snacks	$ 18
Movies	20
Club Dues	15
Baseball Glove	30
Baseball Cards	18
Total Expenses	$101

Currently, George makes $80 a month mowing lawns. At the end of the month, George looks over his expenses. He sees that he is spending more than he is earning. If he wants to balance his budget, he will have to either cut his spending or increase his income. Which **TWO** of the following strategies can George use to balance his budget?

◯ George can spend $5 less a month on snacks and $5 less a month on club dues.

◯ George can mow one more lawn a month for $20 and cut back on snacks by $1.

◯ George can spend $25 more a month on baseball cards. In addition, he can add another $25 a month to his income by mowing more lawns.

◯ George can stop going out to the movies and cut back on snacks by $1.

GO ON

9 Caffeine is found naturally in chocolate, coffee, and tea. It is added to some foods and drinks. Caffeine can interfere with sleep, make the heart beat faster, cause headaches, and make people dehydrated. Too much caffeine can be life threatening.

The United States Food and Drug Administration (FDA) states that moderate amounts of caffeine (100 to 200 milligrams per day for adults) are safe. Study the chart.

Caffeine

Coffee (5 fl oz)	60-150mg
Chocolate 1 oz	12 mg
Tea (8 fl oz)	26 mg

How many grams of caffeine will be consumed over 30 days if a person drinks one 5-ounce cup of coffee containing 30 milligrams of caffeine per ounce each of those 30 days? Record your answer in the space provided.

	×	mg	×	days	=		mg

mg	=		g

GO ON

10 Giraffes are the tallest living mammals that live on land. Giraffe legs can be 1.8 meters long, which is taller than many people. If a newborn giraffe is 1.8 meters tall, an adult female giraffe is 4.6 meters tall, and an adult male giraffe is 5.2 meters tall, how many centimeters taller is an adult female giraffe than the newborn?

Record your answer in the space below. Show how you find your answer.

BE SURE YOU HAVE RECORDED ALL OF YOUR ANSWERS IN THE TEST BOOKLET.

STAAR CONNECTION™
Diagnostic Series™
Grade 5 Math
Answer Key

Assessment 1

1 ✓ 42 is a composite number, and 12 is a composite number.

✓ 5 is a prime number, and 42 is a composite number.

2 Ⓓ The expression 280 – [(2 × 30) + (3 × 60)] can be used to find the remaining distance to Kayne's grandparents' house. To solve the expression, first multiply 2 and 30. Next multiply 3 and 60. Add these two products. Then, subtract that sum from 280 to find the number of miles remaining.

40 miles

3 6 c $\frac{3}{4}$ rounds to 1, $\frac{1}{4}$ rounds to 0, $1\frac{1}{3}$ rounds to 1, 1 rounds to 1, $1\frac{3}{4}$ rounds to 2, 1 rounds to 1. 1 + 0 + 1 + 1 + 2 + 1 = 6 c

4 155 ÷ 13 = 11 with 12 remainder

Ⓐ $122

5 Ⓓ 240 lb

6 4

Each quart = 4 cups

7

Slices of Pie

Stem	Leaf
0	3
1	0 1 1 4 6
2	0 3 4 6
3	
4	2

8 ✓ George can mow one more lawn a month for $20 and cut back on snacks by $1.

✓ George can stop going out to the movies and cut back on snacks by $1.

9 5 × 30 mg × 30 days = 4,500 mg

4,500 mg = 4.5 g

10 280 centimeters

Student Name:	STAAR CONNECTION™ Grade 5 Diagnostic Series Math

The following charts provide each item along with the corresponding reporting category, identification of readiness or supporting standard, content student expectation, and process student expectation.

Circle the number of any question that has been answered incorrectly. Circle the TEKS that need additional reinforcement.

Assessment 1				
Item Number	**Reporting Category**	**Readiness or Supporting**	**Content Student Expectation (TEKS)**	**Process Student Expectation (TEKS)**
1	1	Supporting	5.4A	5.1D
2	1	Readiness	5.4F	5.1G
3	2	Supporting	5.3A	5.1C
4	2	Readiness	5.4B	5.1D
5	3	Readiness	5.4H	5.1B
6	3	Supporting	5.7A	5.1A
7	4	Supporting	5.9A	5.1D
8	4	Supporting	5.10F	5.1A
9	3	Supporting	5.7A	5.1B
10	3	Supporting	5.7A	5.1B