SIRIUS

SAMPLER
Use with Your Students!

GRADE 4

MATH ZINGERS

Solving the Most-Missed STAAR® Test Items

- Engages all students
- Promotes analytical thinking
- Builds test-taking confidence

STAAR GRADE 4 MATHEMATICS REFERENCE MATERIALS

LENGTH

Customary	Metric
1 mile (mi) = 1,760 yards (yd)	1 kilometer (km) = 1,000 meters (m)
1 yard (yd) = 3 feet (ft)	1 meter (m) = 100 centimeters (cm)
1 foot (ft) = 12 inches (in.)	1 centimeter (cm) = 10 millimeters (mm)

VOLUME AND CAPACITY

Customary	Metric
1 gallon (gal) = 4 quarts (qt)	1 liter (L) = 1,000 milliliters (mL)
1 quart (qt) = 2 pints (pt)	
1 pint (pt) = 2 cups (c)	
1 cup (c) = 8 fluid ounces (fl oz)	

WEIGHT AND MASS

Customary	Metric
1 ton (T) = 2,000 pounds (lb)	1 kilogram (kg) = 1,000 grams (g)
1 pound (lb) = 16 ounces (oz)	1 gram (g) = 1,000 milligrams (mg)

TIME

1 year = 12 months

1 year = 52 weeks

1 week = 7 days

1 day = 24 hours

1 hour = 60 minutes

1 minute = 60 seconds

Table of Contents

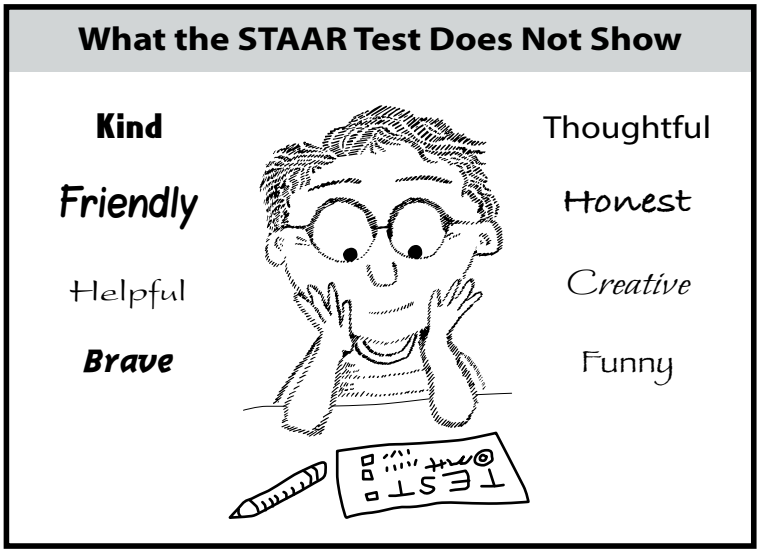
Included in Sampler

❶ Zingers—Solving the Most-Missed STAAR Test Items (Spring 2016–2017)

❷ On Your Own—Mixed Readiness Practice (13 STAAR Test Items)

Dear Student,

You are amazing! No test could ever show how wonderful you are.



You will take the STAAR Grade 4 Math Test later this year. It may look different from other tests. Don't worry. The lessons in this workbook will help you. You will see problems like the ones on the STAAR Test. You will learn how to solve them.

What's a Zinger?

Zingers are test questions that were hard for other students. But here's a secret. They won't be hard for *you*. Why not? Because you will learn how to solve Zingers. They won't surprise you when you see them on the STAAR test. You will know exactly what to do.

Practice Smart

Here's another secret. You can do well on the STAAR test. All it takes is practice. But to practice *smart*, you should practice problems like the ones on the test. Each lesson gives you a chance to practice smart.

Getting ready for the STAAR Test can be fun! Read each lesson carefully. Solve the practice problems. Keep trying. You will succeed!

Your STAAR success coaches,

The Sirius Education Team

How to Take the Zing Out of Zingers!

Zingers will not get the best of you! If you follow these steps, you will get better at solving STAAR test problems.

STEP 1 **READ and UNDERSTAND** Read the problem carefully.

READ and UNDERSTAND **Read the problem carefully. 51% of students missed it!**

Kristine has a $10 bill to spend at a book fair. She buys one book for $4.95, two bookmarks for $0.65 each, and a key chain for $1.85.

How much change should Kristine receive from her $10 bill?

A $2.55 **C** $3.45

B $2.10 **D** $1.90

STAAR Grade 4 2017 #21

1. The total amount Kristine has to spend is $_____.
2. She buys a book that costs $_____, two bookmarks that each cost $_____, and a key chain that costs $_____.

1. Look at the numbered questions below the boxed problem. How can these questions help you solve the problem?

_____

_____

If you are not sure how to solve this problem, that's OK! Go on to the next section. If you do know how to solve the problem, solve it now. But don't stop here! Keep reading. You may learn another method.

STEP 2 **PLAN and SOLVE** Read how two students solved the problem.

PLAN and SOLVE **Read what each student thinks.**

Arthur thinks . . .

First I'll add to find her total.

```
  4.95
  0.65   Line up decimal points
+ 1.85   to add.
  7.45
```

Then I'll subtract to find her change.

```
  10.00   Line up
− 7.45    decimal points
  2.55    to subtract.
```

*My choice is **A**.*

Esteban thinks . . .

I have to find the total cost of what she buys.

```
  4.95
  0.65
  0.65   She buys 2 bookmarks.
+ 1.85
  8.10
```

To find the change, I subtract from $10.

```
  10.00
− 8.10
  1.90
```

*My choice is **D**.*

2. These two students' answers are **different** | **the same** .

So, it **is** | **is not** possible for both students to be right.

As you read what each student thinks, watch out for errors. Finding other students' mistakes will help you avoid making the same mistakes yourself.

STEP 3 **LOOK BACK** What did you learn by seeing how other students solved the problem?

LOOK BACK **Answer each question.**

8. Tell why Arthur's answer is not correct.

_____

_____

Did you learn a new way to solve the problem? Knowing different ways to solve problems helps you on the test.

STEP 4 **GUIDED PRACTICE** Now solve a similar problem. The steps below the problem can help you solve it.

GUIDED PRACTICE **Read the problem carefully.**

The list shows the number of trees Isaiah planted in three years.

- He planted 521 trees in the first year.
- He planted 387 trees in the second year.
- He planted 438 trees in the third year.

Isaiah wants to plant a total of 2,000 trees. How many more trees does Isaiah need to plant?

F 654 **H** 874

G 1,346 **J** 764

STAAR Grade 4 2016 #15

10. First, find how many trees Isaiah planted in three years. In the problem above, draw a box around the numbers you will use.

11. **Add** | **Subtract** the boxed numbers to find how many trees Isaiah planted. He planted _____ trees in three years.

STEP 5 **INDEPENDENT PRACTICE** Finally, spread your wings and fly on your own. Use everything you have learned to solve the problems in this section.

INDEPENDENT PRACTICE **Solve each problem.**

14. Eric bought a notebook for $1.95 and two pens for $1.15 each. How much change should he receive from a $5 bill? _____

STAAR problem solving takes time, so don't rush. And write neatly. If you get a wrong answer, look at your work. Try to find your mistake. When you understand a mistake, you are less likely to make it again.

ZINGER 7

4.5A Represent multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity.

READ and UNDERSTAND **Read the problem carefully. 43% of students missed it!**

It took Ian three years to collect 25,413 aluminum cans to recycle. In the first year he collected 8,917 cans, and in the second year he collected 7,639 cans.

Which equation can be used to find x, the number of cans Ian collected in the third year?

A $x = 25{,}413 - 8{,}917 - 7{,}639$

B $x = 25{,}413 + 8{,}917 + 7{,}639$

C $x = 8{,}917 + 7{,}639$

D $x = 8{,}917 - 7{,}639$

STAAR Grade 4 2017 #11

1. In three years, Ian collected a total of _____ cans.

2. He collected 8,917 cans in the **first | second** year.
He collected 7,639 cans in the **first | second** year.

3. You want to find the equation where x is the number of cans he collected in **the third year | all three years** .

PLAN and SOLVE **Read what each student thinks.**

Ben thinks . . .

I know I have to add to find the total. I'll draw a picture.

(Year 1) + (Year 2) + (Year 3) = (Total)

8,917 + 7,639 = x

My choice is **C**.

Mercedes thinks . . .

Put the cans for the first year, the second year, and the third year together to make the total.

25,413		
8,917	7,639	*x*
1st year	2nd year	3rd year

So 25,413 – 8,917 – 7,639 = x.

My choice is ***A***.

4. Ben's picture **is | is not** correct.

5. Ben adds the numbers of cans in years **1 and 2 | 1 and 3** .

6. Mercedes thinks you can find x by **adding to | subtracting from** the total number of cans.

LOOK BACK **Answer each question.**

7. In Ben's equation, what does x represent?

_____

_____

8. The correct answer is **A** | **B** | **C** | **D** .

GUIDED PRACTICE **Read the problem carefully.**

A factory makes 400 refrigerators every day. The factory makes 125 more stoves per day than refrigerators. Which equation can be used to find x, the total number of refrigerators and stoves the factory makes in one day?

F $x = 400 + 400 + 125$

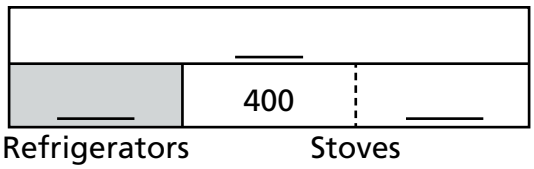
G $x = 400 + 125$

H $x = 400 + 400 - 125$

J $x = 400 - 125$

STAAR Grade 4 2016 #10

9. In one day, the number of refrigerators is _____. The number of stoves is equal to 400 + _____. The total number of refrigerators and stoves is x. Fill in the diagram.



10. To find x, **combine** | **compare** the number of refrigerators and the number of stoves.

11. The total number of refrigerators and stoves is equal to _____ + _____ + _____.

12. The correct answer is **F** | **G** | **H** | **J** .

INDEPENDENT PRACTICE **Solve the problem.**

13. Ana and Olivia traveled by car to their mother's house. Ana drove for 168 miles. Then Olivia drove the rest of the way. Ana drove 17 more miles than Olivia. Write an equation that can be used to find x, the total number of miles Ana and Olivia traveled to their mother's house.

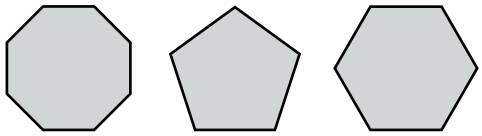
$x =$ _____

ZINGER 11

4.6D Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size.

READ and UNDERSTAND **Read the problem carefully. 43% of students missed it!**

Ruth sorted polygons into groups. The polygons shown belong in the same group.



Which description best represents this group? *STAAR Grade 4 2017 #5*

A Polygons with perpendicular and parallel lines

B Polygons with perpendicular lines only

C Polygons with acute and obtuse angles

D Polygons with obtuse angles only

1. Two kinds of lines are named in the answer choices. The two kinds of lines are _____ lines and _____ lines.

2. The answer choices also name two kinds of angles, _____ angles and _____ angles.

3. You want to find the answer that describes **all** | **most** of the polygons in the group.

PLAN and SOLVE **Read what each student thinks.**

Charo thinks . . .

*Perpendicular lines make a right angle. None of the polygons have perpendicular lines. So **A** and **B** are wrong.*

The polygons have obtuse angles.

*My choice is **C**.*

Shane thinks . . .

*Perpendicular lines form a right angle. I don't see any right angles in the polygons, so I'll cross out **A** and **B**. Acute angles are smaller than 90°. There are no angles like that, so I'll cross out **C**. Obtuse angles are more than 90°. All of the angles are obtuse.*

*My choice is **D**.*

4. Charo looks at **four** | **three** answer choices.

5. After Shane crosses out answer choices **A**, **B**, and **C**, he **checks** | **does not check** **D**.

LOOK BACK **Answer each question.**

6. Tell why Charo's answer is not correct. _____

_____

7. The correct answer is **A** | **B** | **C** | **D** .

GUIDED PRACTICE **Read the problem carefully.**

Liza drew a figure on the front of her notebook that has two obtuse angles. Which figure could be the one Liza drew? *STAAR Grade 4 2016 #14*

F Rectangle

G Obtuse triangle

H Parallelogram

J Right triangle

8. An obtuse angle measures **more** | **less** than 90°. It is **larger** | **smaller** than a right angle. How many obtuse angles are in Liza's figure? _____

9. All four angles in a rectangle are **acute** | **right** | **obtuse** . That means you can cross out answer _____.

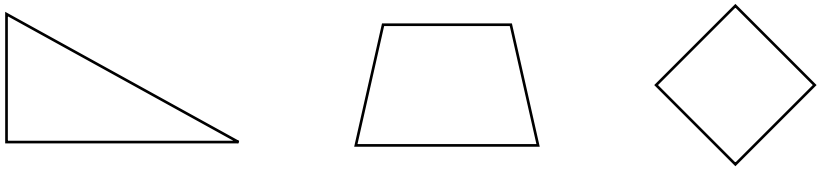
10. A triangle **can** | **cannot** have two obtuse angles. Can you cross out any more answers? If so, which one(s)?

_____

11. A parallelogram **can** | **cannot** have two obtuse angles.

12. The correct answer is **F** | **G** | **H** | **J** .

INDEPENDENT PRACTICE **Use the figures below for each problem.**



13. Draw a circle around all polygons with parallel lines.

14. Draw a line under all polygons with exactly one right angle.

15. Draw a star inside all polygons with perpendicular lines.

16. Draw a check mark inside all polygons with obtuse angles.

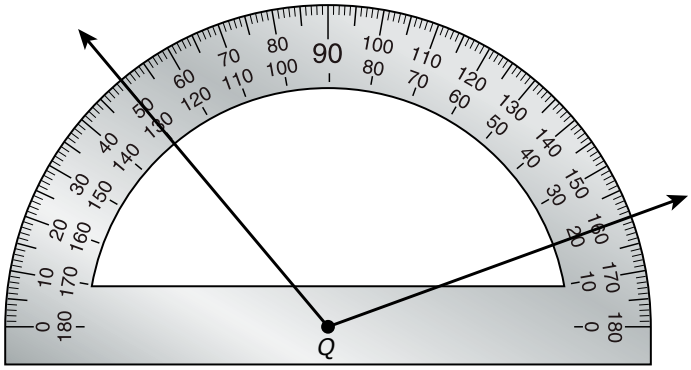
ZINGER 14

4.7C Determine the approximate measures of angles in degrees to the nearest whole number using a protractor.

READ and UNDERSTAND **Read the problem carefully. 39% of students missed it!**

Angle *Q* is shown on this protractor. *STAAR Grade 4 2017 #25*

What is the measure of angle *Q* to the nearest degree?



A 70°, because 50° plus 20° equals 70° **13%**

B 150°, because 130° plus 20° equals 150° **18%**

C 30°, because 160° minus 130° equals 30° **8%**

D 110°, because 160° minus 50° equals 110° **61%**

1. On the left side of the protractor, the inner | (outer) scale starts at 0°. Angle *Q* intersects this scale at **50** ° and **160** °.

2. You want to find the measure of angle *Q* to the nearest **degree**.

PLAN and SOLVE **Read what each student thinks.**

Cheyenne thinks . . .

I'll use the outer scale. The left side of the angle is at 50 and the right side is at 160.

160 – 50 = 110

*My choice is **D**.*

Jamil thinks . . .

*Angle Q is bigger than a right angle so it measures more than 90°. I can eliminate **A** and **C**. Angle Q crosses the inner scale at 130 and 20.*

*My choice is **B**.*

3. Cheyenne adds | (subtracts) to find the measure of angle *Q*.

4. Jamil (is) | is not correct when he says angle *Q* crosses the inner scale at 130° and 20°.

LOOK BACK **Answer each question.**

5. Tell why Jamil's answer choice is not correct. **Sample answer: Using the inner scale, the measure of angle *Q* is 130° – 20° = 110°, not 130° + 20°, or 150°.**

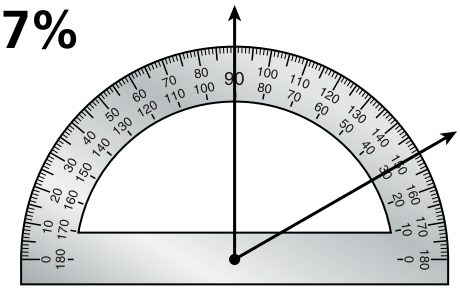
6. The correct answer is A | B | C | (D) .

GUIDED PRACTICE **Read the problem carefully.**

Which angle has a measure closest to 30°? *STAAR Grade 4 2016 #46*

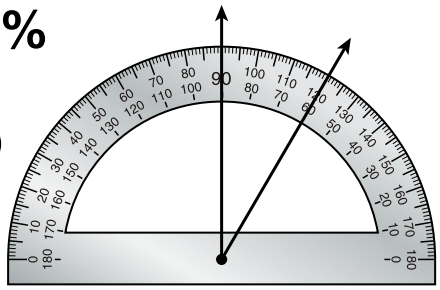
17%

F



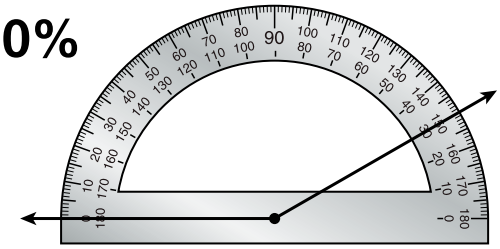
57%

(H)



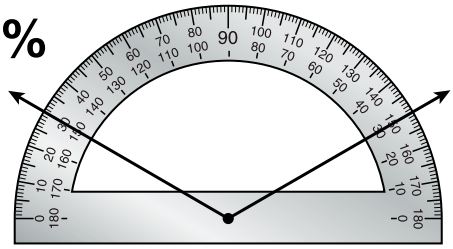
10%

G



16%

J



7. Angles **F** and **H** measure (less) | more than 90°. Angles **G** and **J** measure less | (more) than 90°. So angles **G** and **J** are NOT closest to 30°.

8. The measure of angle **F** is 60° because 90° – 30° = 60°.

9. The measure of angle **H** is 30° because **120**° – 90° = 30°.

10. The correct answer is F | G | (H) | J .

INDEPENDENT PRACTICE **Use the angles above to solve each problem.**

11. To the nearest degree, the measure of angle **G** is **150**°.

12. To the nearest degree, the measure of angle **J** is **120**°.

ZINGER 14

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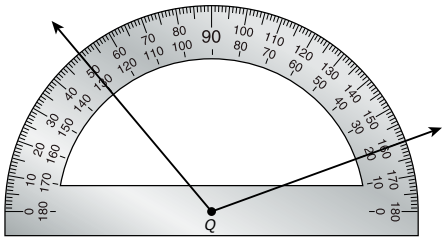

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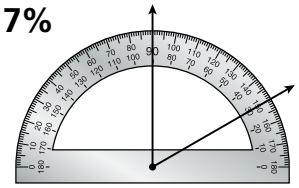
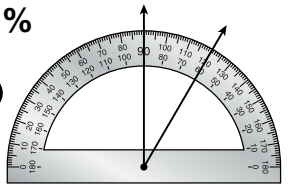
Which angle has a measure closest to 30°? *STAAR Grade 4 2016 #46*

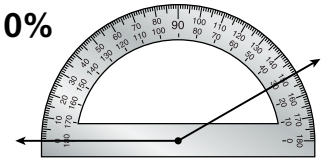
17% **F**



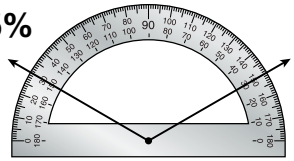
57% **(H)**



10% **G**



16% **J**



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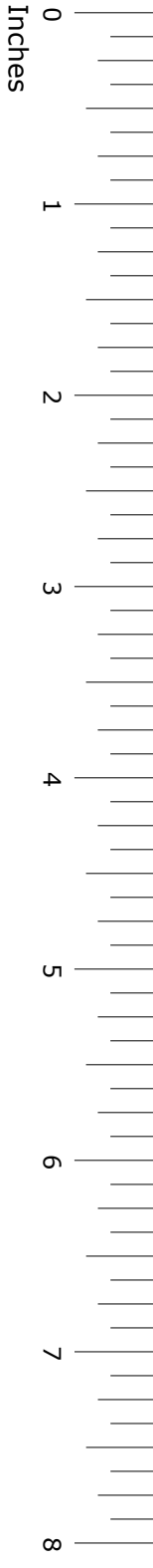
To obtain a copy of the remaining answers to this Sampler, email:

Teachers@SiriusEducationSolutions.com

STAAR GRADE 4 MATHEMATICS REFERENCE MATERIALS

PERIMETER			
Square			$P = 4s$
Rectangle	$P = l + w + l + w$	or	$P = 2l + 2w$

AREA	
Square	$A = s \cdot s$
Rectangle	$A = l \cdot w$



SAMPLER

GRADE 4 MATH ZINGERS CONTENTS

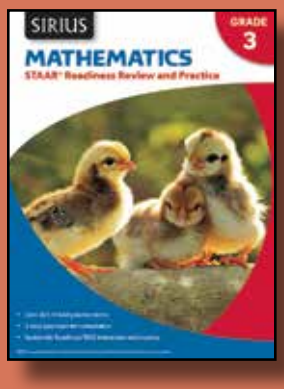
Part 1: ZINGERS

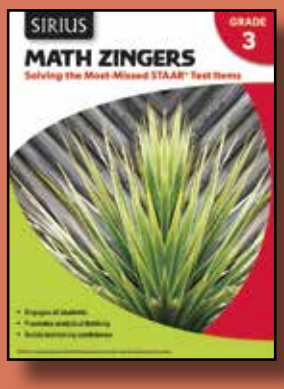
Part 2: ON YOUR OWN

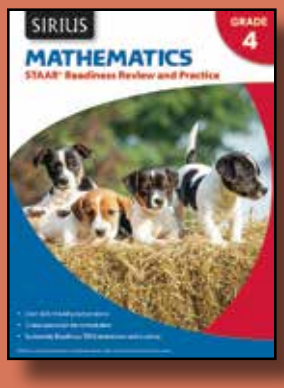
13 Mixed Readiness TEKS STAAR Practice Items

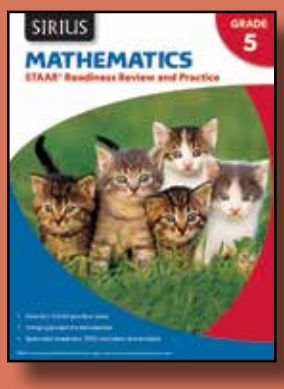
Use with Your Students!

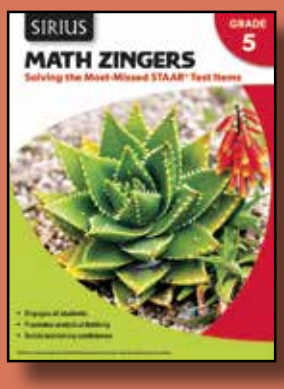
Visit SiriusEducationSolutions.com for additional STAAR resources.











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