FOURTH GRADE
BOARD MATH
BANK OF PROBLEMS

Compiled by members of the Math Cadre

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OPERATIONS AND ALGEBRAIC THINKING

Operations with Whole Numbers (1 problem) – OA.1, OA.2, OA.3

.Sally is 5 years old. Her mom is 8 times older. How old is her Mom?

A blue scarf costs $3, a red scarf costs 6 times as much. How much does the red scarf cost?

On vacation, your family travels 256 miles on the first day, 231 miles on the second day and 198 miles on the third day. How many miles did they travel?

5 x 7 = 35. What is a real life situation that would represent this equation?

Sierra has 5 times as many pencils as Monika. If Sierra has 5 pencils, how many does Monika have?

A book costs $18. That is 3 times more than a DVD. How much does a DVD cost?

A red binder costs $18. A blue binder costs $6. How many times as much does the red binder cost compared to the blue binder?

Lane saved $5 from his allowance. Miguel saved nine times of Lane's amount. How much did Miguel save?

Diego ran 3 miles. Karesh ran 5 times as many miles as Diego. How many miles did Karesh run?

On a vacation, your family travels ___ miles on the first day, ___ miles on the second day and ___ miles on the third day. How many miles did they travel total?

Your class is scollecting bottled water for a service project. The goal is to collect 300 bottles of water. On the first day, Max brings in 3 packs with 6 bottles in each container. Sarah wheels in 6 packs with 6 bottles in each container. About how many bottles of water still need to be collected?

There are ___students going on a field trip. If each bus held ___ students, how many buses are needed?

Corrine wants to buy herself a new bicycle that costs $240. Corrine has already saved $32, but she needs to make a plan so she can save the rest of the money she needs. She decides to save the same amount of money, x dollars, each month for the next four months. Write an equation that will help Corrine determine how much money she needs to save for the next four months. Solve.

Mr. Martinez has ___ students. He has ___ gold stickers. IF he gives each student the same amount of stickers, how many stickers will be left over?

A factory makes ___ notebooks in an hour. How many notebooks will it make in ___ hours?

Factors, Multiples & Patterns (1 problem) – OA.4, OA.5

There are 4 beans in the jar. 3 beans are added each day. How many beans are in the jar for each of the first five days? **(Note: Multiple days to solve problem – create table, complete table, find function rule)**

What is the difference between factors and multiples? Give examples of both.

Starting at 1, create a pattern that starts at 1 and multiplies each number by 3. Stop when you have 6 numbers.

Find the rule and complete the table. **(Insert a table)**

Is __ prime or composite? How do you know?

What are the factors of ___?

Is ___ a multiple of ___? How do you know?

What is the difference between factors and multiples?

What is another way to write the product of 6 x 8?

List the multiples of ___? What method did you use?

Why is ___ a prime number but ___ is not?

Find the missing number in this sequence: 1, 2, 4, __, 16, 32

Find the missing number in this sequence: 1, 2, 4, 7, 11, 16, ___

Find the rule and complete the table.

2	12
___	14
5	15
___	16
9	19
10	20

Complete the table using the following rule: g = m + 14

m	g
1	___
2	___
3	___
4	18

NUMBERS IN BASE TEN

Place Value (1 problem) – NBT.1, NBT.2, NBT.3

How is the 2 in the number 582 similar to and different from the 2 in the number 528?
Why is 300 x 1 the same as 30 x 10?

On Friday, Kamille drove 95 miles. On Saturday, she drove 57 miles. On Sunday, she drove 32 miles. How many miles did she drive?

Susanna deposited $25.00 one day in her bank account. The next day, she withdrew $13.00. How much money does she have in her account now?

Which number is 10 times more than 80?

What symbol makes this number sentence true? <, >, or =
4872 ◯ 4862

What symbol makes this number sentence true? <, >, or =
Four hundred Fifty thousand ◯ 400,000 + 30,000 + 3000

Mr. Strickland's class is collecting bottles to recycle. The class collected 156 bottles in February, and 459 in April. How many bottles were collected?

Jose's pencil box has 9 pencils, 4 erasers, and 6 blue pens. Mya's pencil box has 2 pencils, 8 erasers, and 7 red pens. Who has more items?

Round ___ to the nearest (ones, tens, hundreds, thousands, etc.). Explain your reasoning.

Round to the indicated place value –
3,456 tens
80,345 thousands

What number is in the thousands spot?
128,237

Write 1,256,609 in expanded notation.

Write 1,256,609 in word form

Write 1,000,000 + 200,000 + 50,000 + 6,000 + 600 + 9 in Standard Form.

Write 1 million + 200 thousand + 50 thousand + 6 thousand + 6 hundred + 9 in standard form.

Using a number line, explain why 368 rounds to 400.

What number sentence is true? **(list only two choices) Prove it.**
48 ÷ 6 = 8
94 ÷ 8 = 12

Compare these two numbers using symbols.

Which of the following has the greatest (least) value?

Cande did a study of farm animals. She studied 1,259 horses and 2,805 pigs. About how many animals did she study? Explain your reasoning.

<u>Operations (2 problems) – NBT.4, NBT.5, NBT.6</u>

Mariano and Lacy decided to share a pizza. Mariano ate ¼ of the pizza and Lacy ate ¾ of the pizza. How much of the pizza did they eat? How do you know?

Find the sum. 3,892 + 1,567. Explain your reasoning.

What is the sum of ___ and ___. **(Can be left up several days to show different ways of solving.)**

What is the difference of 3,546 and 928?

Find the difference. 3546 – 92. Explain your thinking.

What is the difference of ___ and ___. **(Can be left up several days to show different ways of solving.)**

What is the product of 78 and 56?

What is the product of ___ and ___. **(Can be left up several days to show different ways of solving.)**

What is the quotient of 592 divided by 8?

Jamal paid $126 for a magazine subscription. If he is paying $3 for each issue of the magazine, how many issues of the magazine will he receive?

Use the distributive property to find the product of 154 x 6.

Maria read a 135 page book in 15 days. She read the same number of pages each day. How many pages did she read each day?

There are 52 rows of seats in a theater. Each row has the same number of seats. If there are a total of 832 seats, how many seats are in each row?

There are ___ dozen cookies in the bakery. What is the total number of cookies in the bakery?

What would an array area model of ___ and ___ look like?

Use the distributive property to find the product of 154 x 6.
(EX: 154 x 6 = (100 + 50 + 4) x 6 = (100 x 6) + (50 x 6) + (4 x 6) = 600 + 300 + 24 = 924

A 4th grade teacher bought ___ new pencil boxes. She has ___ pencils. She wants to put the pencils in the boxes so that each box has the same number of pencils. How many pencils will there be in each box? Will there be any pencils left over?

NUMBERS IN OPERATIONS – FRACTIONS (NF)

Equivalent Fractions (2 problems) – NF.1, NF.2

Explain why these fractions are or aren't equivalent. **(Show a picture representation of two fractions.)**

Mary used a 12 x 12 grid to represent 1 and Janet used a 10 x 10 grid to represent 1. Each girl shaded grid squares to show 1/4. How many grid squares did they shade? Did they shade the same amount? Why or why not?

Use number lines to show that ½ is equal to 2/4. Explain your thinking.

Which sign makes this number sentence true? <, >, or =
3/8 ◯ 1/3

What fraction is equivalent to ___?

Are these two fractions equivalent? Why or why not?

Use a number line to show that ___ is equal to ___. Explain your thinking.

Shade in 2/3 on one circle and 5/6 on the other circle. Which fraction has the most shaded?

What is the next equivalent pattern for this pattern?
EX: ¼, 2/8, 4/16, ___

There are two cakes on the counter that are the same size. The first cake has ½ of it left. The second cake has 5/8 left. Which cake has more left? Use a drawing or model to show your answer.

Create a drawing or representation that proves ¾ is less than 2/3. Explain your thinking.

Building Fractions (2 problems) – NF.3a, b, c, d, NF.4a, b, c

Mario and Luigi decide to share a pizza. Mario ate 1/8 and Luigi at 3/8 of the pizza. How much of the pizza did the boys eat together?

Sharon and Missy need 8 3/8 feet of ribbon to package gift baskets. Susan has 3 1/8 feet of ribbon and Missy has 5 3/8 feet of ribbon. How much ribbon do they have altogether? Will it be enough to complete the project? Explain why or why not.

Trevor has 4 1/8 pizzas left over from his soccer party. After giving some pizza to his friend, he has 2 3/8 of a pizza left. How much pizza did Trevor give to his friend?

A cake recipe calls for you to use ¾ cup of milk, ¼ cup of oil, and 2/4 cup of water. How much liquid was needed to make the cake?

Find the sum: 3 ¾ + 2 ¼

Find the difference: 3 ¾ + 2 ¼

What are all the different ways we can write 3/8?
(Examples: 3/8 = 1/8 + 1/8 + 1/8 OR 2 1/8 = 1 + 1 + 1/8)

Using a model or drawing, show how 1 ¼ = ¾ = ½

What is the product of 3 x 1/6?

True or false: 5/4 = 5 x ¼. Explain your reasoning.

Which symbol makes this number sentence true? <, >, or =
3 x 2/5 ◯ 6 x 1/5

In a relay race, each runner runs ___ of a lap. If there are ___ team members, how long is the race? Use a number line or visual model to solve.

If each person at a party eats 3/8 of a pound of roast beef, and there are 5 people at the party, how many pounds of roast beef are needed? Use a visual

model or drawing to show your answer. Between what two whole numbers does your answer lie? **(This problem may be solved over multiple days.)**

Using models or drawings, find the subtrahend. (Do not use algorithm to solve.)
4 1/4 - ___ = 2 ¾

<u>Decimals and Fractions (1 problem) – NF.5, NF.6, NF.7</u>

Express 3/10 as hundredths.

Find the sum: 3/10 + 4/100

Represent 3 tenths and 30 hundredths on the models below. What do you notice? **(Display a drawing a "flat" with 100 squares.)**

Using the place value model below, write 32/100.

Hundreds	Tens	Ones	.	Tenths	Hundredths

Where would 32/100 be on the number line?

Rewrite 0.57 as a fraction and then place a dot on the number line where it would be found. **(Provide a number line.)**

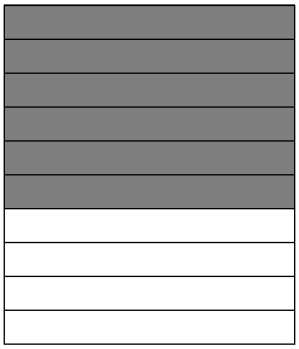
Draw a model that shows 0.3 < 0.5. Explain your thinking.

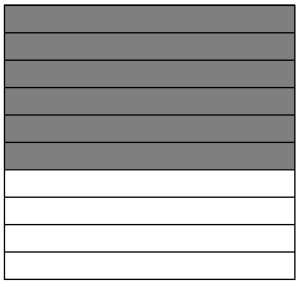
How is 32/100 written as a decimal?

How is 0.56 written as a fraction?

Is this number sentence true? Why or why not?
62/100 = 0.62 = 6/10 + 2/100

Both of the figures below show 6/10. Are they the same amount? Why or why not?





MEASUREMENT AND DATA (MD)

Measurements (1 problem) – MD.1, MD.2, MD.3

What does the prefix kilo- mean?

Solve: ___m = ___ km

How many inches are in ___ ft?

Create a chart comparing the number of inches to feet.

Maria and ___ are planning for a pizza party. They purchase ___ quarts of milk. If each glass holds ___ oz., will everyone get at least one glass of milk?

Susan has ___ feet of ribbon. She wants to give her ribbon to her __ best friends so each friend gets the same amount. How much ribbon will each friend get?

Mason ran for an hour and ___ minutes on Monday, ___ minutes on Tuesday, and ___ minutes on Wednesday. What was the total number of minutes Mason ran?

Mario and his 2 brothers are selling lemonade. Mario brought one and a half liters, Javier bought ___ liters and Ernesto bought ___ milliliters. How many total milliliters of lemonade did the boys have?

A rectangular garden has an area of 95 square feet. It Is 5 feet wide. How long is it?

A plan for a house includes a rectangular room with an area of 60 square meters and a perimeter of 32 meters. What are the length and width of the room?

Mr. Mercado is putting a fence around his yard, which is square. If one side is 9 ft., what is the perimeter of his yard? If fencing costs $1.50 a yard, how much will his fencing cost?

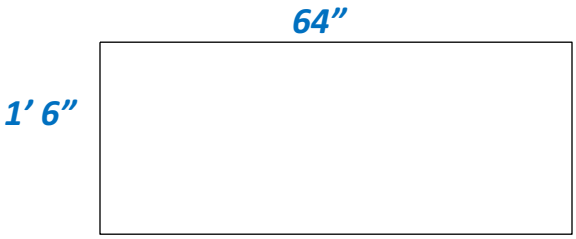
You need 8 lengths of string. Each string needs to be exactly 7 inches long. How much string will you need altogether?

You have 24 inches of string that are cut into 6 equal pieces. How long will each piece be?

A rectangular garden has an area of 95 square feet. It is 5 feet wide. How long is it?

Carla spent 1/5 of her money on a book. The book cost $25.00. How much money did she have to start with?

Find the area.

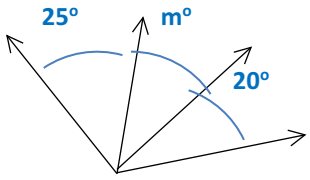


Solve: 9m = ___ km

Geometric Measurement/Interpret Data (1 problem) – MD.4, MD.5a, b, MD.6, MD.7

Draw a right angle. What makes it a right angle?

If the two rays are perpendicular, what is the value of m?



A water sprinkler rotates on-degree at each interval. If the sprinkler rotates a total of 100°, how many one-degree turns has the sprinkler made?

A lawn water sprinkler rotates 65 degrees and then pauses. It then rotates an additional 25 degrees. What is the total degree of the water sprinkler rotation?

(Create a line plot (fractions) using data from the classroom—then ask questions about the data on the line plot. This could be a multi-day problem.)

How many objects measured ¼ inch? ½ inch?
What is the total length of all the objects measured?

A sprinkler that completes a circle has turned how many degrees?

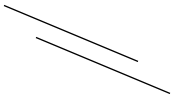
GEOMETRY

Lines, Angles, & Shapes (2 problems) – G.1, G.2, G.3

What type of triangle is this? How do we know?

What is the measure of a right angle?

Are these lines, parallel, perpendicular or intersecting?

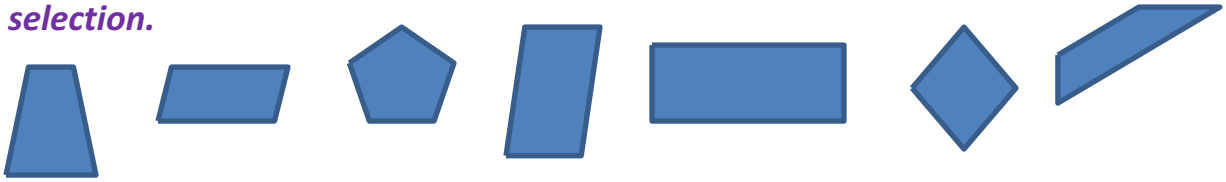


Identify the angles and lines found in this isosceles triangle.

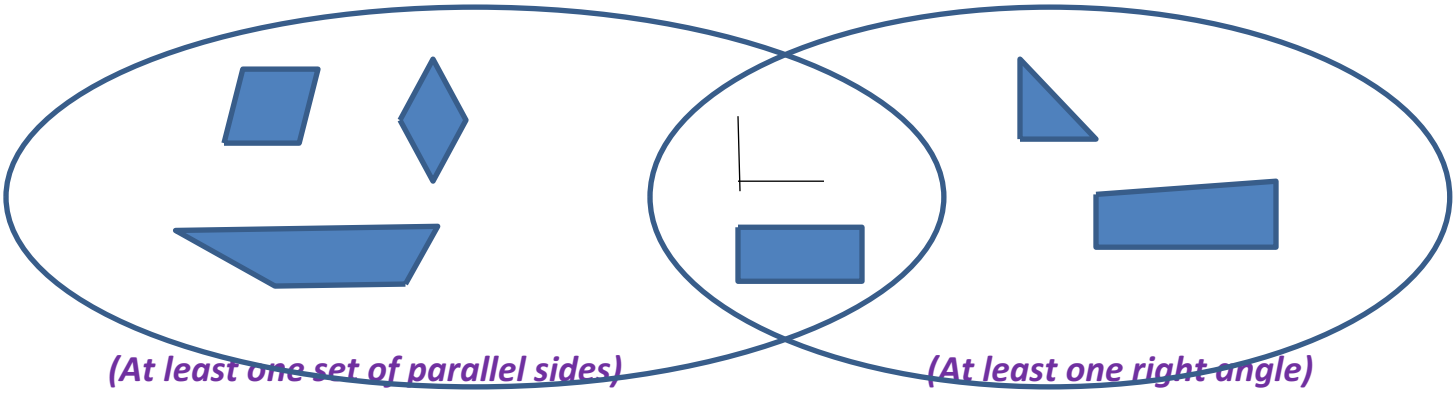
How many acute obtuse, and right angles are in this shape?

How are a parallelogram and rectangle different? Similar?

Identify which of these shapes have perpendicular or parallel sides. Justify your selection.



Which figures in the Venn diagram below is in the wrong place. Explain how do you know?



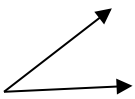
(At least one set of parallel sides) ***(At least one right angle)***

Draw and name a figure that has two parallel sides and exactly 2 right angles.

Draw all lines of symmetry for this figure.

How many lines of symmetry do you think there would be for regular polygons with 9 and 11 sides? Draw a sketch showing your answer.

What kind of angle is this? How do you know?



MATH REASONING (1 problem)

(NOTE: If problems require several steps, such as a MARS task, you can do one step per day until the problem is solved.)

Teacher can select word problems to meet student needs from the textbook, MARS tasks, problems of the day, etc.

You can put these in the Math Reasoning section of your board also:
Action:
Operation:
Number Sentence:

<u>Solve the problem using the PUSD Problem Solving Strategy:</u>

There are 8 rows of seats in a theater—each row has the same number. If there are a total of 72 seats, how many seats are in each row?

Sarah is putting seeds in bags. If there are 2349 pieces of seeds and 10 go into each bag, how many bags will Sarah need?

The 4th grade class is going on a field trip to the Exploratorium. There are 113 students going. Every group of 4 students will need an adult chaperone. How many chaperones will be needed?