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How many things can you find to count on your first day in Beast Academy?

Campus Tour 26

Can you tell how many toes are on the crossing guard's blue foot without counting them?

One Hundred 44

What patterns can you find in a hundred chart?

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What do we call a shape with 9 straight sides?

Spins & Flips 84

Can you read this question? ƨɹǝʍsuɐ ʇɥǝ ʇuǝsǝɹd ɹnoʎ ɐɹǝ sɹǝʇʇɐɯ ll'ɹoʎ ɟI

Apart & Together 106

Can you split a square into 9 smaller squares that are all the same size?

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One for One 124

Are there more X's or O's in the row of letters below? How can you tell without counting?

XOXOXOXOXOXOXOXOXOXOXOXOXOXOX

More or Less 142

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Draw two dots on a flat sheet of paper. Now, can you draw the shortest path a bug would walk to get from one dot to the other?

The Beginning 181

Do you think the little monsters would make a good math team?

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How many rooms are on the hall that R&G are sweeping?

\+ & = 18

What do the symbols + and = mean?

Strategies 34

If I add the number of red jellybeans to the number of black jellybeans in a jar, I get 68. What will I get if I add the number of black jellybeans to the number of red jellybeans?

Ten 52

Can you split the six numbers below into three pairs so each pair of numbers adds up to ten?

2 4 6 9 8 1

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Taking Away 84

How many are left if you take away 6 from 41?

Difference 106

Subtraction doesn't always mean taking away. Can you think of a problem you solve with subtraction where you are not taking anything away?
(See page 117 for some examples.)

Strategies 126

Does taking away 3 then 7 give the same result as taking away 10 all at once?

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Odd One Out 150

Can you find something about each word below that makes it different from the other three?

PUMA pear LIME PEACH

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What's your favorite Kooky Critter?

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What addition and subtraction strategies do you use most?

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Tens & Ones 68

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How can you tell?

Comparing Differences 120

Which is more: 64-16 or 64-17?
How much more?

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Which is easier: 45-18, or 47-20?
Do they have the same answer?

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Can you create a pattern of shapes that goes on forever but never repeats the same shape twice?

Number Patterns 168

Can you find the next three numbers in the pattern below?

1 1 2 3 5 8 13 ☐ ☐ ☐

Special Patterns 184

How can a number be square? Or triangular?

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Beyond 100 14

What number is one hundred more than two hundred?

Counting Up 30

How would you add 7 to 196?

Blocks 46

What number do you get when you combine 2 hundreds, 11 tens, and 4 ones?

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Which expression below is not equal to the others?

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Comparing Lengths 72

What are some ways we can compare the lengths of objects without putting them side-by-side?

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In Chapter 10, Lizzie and her mom count the number of steps it takes to walk to the bus stop. Do you think they got the same answer?

Days 112

If May the 4th is a Thursday, what day of the week is May the 24th?

Clocks 122

What time will it be 55 minutes after 12:55?

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How can a grid on a map help us describe where things are located?

Directions 152

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If you are walking south, which direction is to your left?

Order 174

What order would you use to connect the five points below to make a star?

J

N K

M L

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What does the 3 in 37 stand for?

Regrouping & Breaking 30

Will subtracting ten from a number always decrease its tens digit by one?

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The Number Line 42

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Distance Between 48

What number is halfway between 54 and 98?

Iago 55

You have a penny on 21. Where can you place a second penny to capture the dime on 25?

Comparing 56

What symbols are used to compare numbers that are not equal?

Ordering 60

After 888 and 889, what is the third-smallest three-digit number that uses only 8's and 9's?

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A Little Extra 82

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Can you find an easy way to add 14+14+16+16?

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How do we subtract 1 ten and 8 ones from 5 tens and 2 ones?

\+ & − 20

How can 254+359=613 help you solve 613−359?

Counting Up 24

What is the difference between 301 and 199?

A Little Extra 31

What's an easy way to take away 198 from 356?

Alex's Notes 35

Which strategy would you use to solve 235−188?

Order 36

Is 513−44−13 equal to 513−13−44?

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Expressions 44

Can you write a math expression that means, "subtract 5+3 from 9?"

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How can writing parentheses in an expression change its value?

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If ☆=65, what is ☆−40?

Simplifying 60

How can you simplify △+5−5+5−5+5−5?

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Backwards 80

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Drawing 85

Larry finished 5th in a race. If six monsters finished between Larry and Jerry, then in what place did Jerry finish?

Math Meet 92

How will the little monsters perform in their first Math Meet against the new bots?

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Rulers 21

About how many inches tall is Grogg's little eye?

Grogg's Notes 27

Is seeing believing?

From Inches to Miles 28

About how long does it take to drive a mile on the highway?

Mixed Measures 34

How would you write 35 inches as a mixed measure in feet and inches?

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Is 37+25−37 equal to 37−37+25?

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Can you get 5 points on a turn?

Evaluating Expressions 52

How could you evaluate 48+43+12−43?

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How many 9's do you need to add to get 63?

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Odd & Even 72

The sum of two whole numbers is odd. How many of those numbers are odd?

More Than Two 78

Is the sum of all of the whole numbers from 1 to 50 odd or even?

Crossings 86

Is the number of times you've passed through your bedroom door odd or even?

Coins 92

Starting with 5 coins on heads, can you turn over two coins at a time until there are five tails?

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Thousands and Beyond 14

How do we read the number 100,010,001?

Grogg's Notes 21

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Computing 22

What do you get when you add 43,972+15,000?

Comparing 28

Which is larger, 1 million or 800 thousand?

Estimation 31

What are some qualities of a good estimate?

Infinity 38

Is there a biggest number?

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Stacking 45

Why is it helpful to stack numbers with their place values lined up when adding them?

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Does stacking work for adding more than two numbers?

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Cryptarithms 64

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How many different routes can Captain Kraken sail between Beast Beach and Cyclops Shore?

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Math Meet 94

Will the Bots' training help them beat the little monsters, or will Alex, Grogg, Lizzie, and Winnie prevail?

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What do we call polygons that have more than four sides?

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Hundred Charts 50-55

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Perimeter 74-76

How do you find the perimeter of a polygon?

Rectilinear Shapes 77-78

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Will the Little Monsters outscore the Bots?

Area 87-90

How do you find the area of a rectangle?

Lizzie's Notes 91-92

How do you find the area of a rectilinear shape?

Rep-Tiles 93-98

Can you divide any triangle into four smaller copies of itself?

Grogg's Notes 99

Do you know the difference between a reptile and a rep-tile?

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St. Ives 14-15

Why learn to multiply?

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How does a times table work?

The Commutative Property 26-27

Why is 3×4=4×3?

Block Blob 28

Can you make the biggest Block Blob?

Multiplying Big Numbers 29-32

What is 90,000×3,000?

The Associative Property 33-36

What is the easiest way to multiply 5×5×9×3×2×2?

Multiplying by 4 and by 5 37-41

Can you compute 46×5 in your head?

Winnie's Notes 42

Can you find some of the patterns that Winnie has discovered?

Penny Rows 43-46

Can you make two rows of five pennies using just nine pennies?

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For a given perimeter, what rectilinear shape has the largest area?

Squares that End in 5 54-57

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How can you find the next-largest perfect square?

Winnie's Notes 62

Can you subtract two consecutive perfect squares and get another perfect square?

Dots and Boxes 63

Who will claim the most squares to win the game?

In the Garden 64-65

What do you get when you add the first 100 odd numbers?

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Can you find a way to dissect a 7 by 7 square into 9 smaller squares that have whole number side lengths?

Alex's Notes 71

How many squares did it take to dissect Alex's 89×89 square?

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Order of Operations 74-77

What do you do first when computing 2+7×3?

Big Rectangles 78-81

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Pirate Booty 82-86

How can you add seven 18's and two 7's in your head?

The Distributive Property 87-90

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Math Meet 91-101

Will the Little Monsters outscore the Bots?

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The number n 14-16

What is your favorite number?

Variables 17-22

What is the difference between an expression and an equation?

Winnie's Notes 23

How do you simplify the expression j+k-j-k?

Writing Equations 24-27

Can you translate a sentence into a math equation?

Lizzie's Notes 28

Seven more than what number is 31?

Solving Equations 29-34

Can you solve an equation without guessing and checking?

Wild Tic-tac-toe 35

Do you want to go first or second?

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Can you solve Calamitous Clod's combination conundrum to save Professor Grok?

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Sharing 44-49

How would you split 48 gumballs into 8 equal piles?

× and ÷ 50-52

How can multiplication help you solve a division problem?

Leftovers 53-59

How many extra cookies will there be after 30 cookies are divided equally among 7 monsters?

Lizzie's Notes 60

What is the quotient and remainder of 89÷7?

Remainders 61-67

What is the remainder when 19×20 is divided by 17?

Teamwork 68

Can you find a remainder without even knowing the dividend?

Nim 69

Can you discover the secret of Nim?

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Flossie 72-73

How do units help us communicate?

Units 74-76

What units could you use to describe yourself?

Customary Units 77-82

How much does this book weigh?

Lizzie's Notes 83

How many feet are there in one mile?

Carpool 84-85

What do they call a Quarter Pounder with Cheese in the upper school?

The Metric System 86-89

How do you add 3 meters to 3 centimeters?

Math Meet 90-99

Will the Little Monsters outscore the Bots?

Alex's Notes 100

How many liters are there in 1 hectoliter?

Proper Measurin' 101-107

Is apple cider usually measured in feet, pounds, or gallons?

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One-Eighth 14

How do you measure something that is only part of an inch long?

Unit Fractions 17

Which is greater, one-ninth or one-tenth?

Whole-Number Fractions 22

What whole number is equal to fifteen fifths?

Equal Fractions 25

How many thirds does it take to equal two sixths?

Mixed Numbers 29

Between which two whole numbers is $\frac{15}{4}$?

Parts of a Whole 34

If two discs are divided among nine pirates, what fraction of a disc does each pirate get?

Equivalent Fractions 39

How do you simplify $\frac{70}{84}$?

Comparing Fractions 45

How can you compare fractions whose numerators and denominators are different?

Alex's Notes 51

What patterns can you find?

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Close Enough 54

What is an estimate?

Rounding 57

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Over and Underestimating 63

How can you tell whether an estimate is too high or too low?

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How would you estimate 700÷9?

Handprint Area 72

What is the area of your handprint?

Guesstimate 73

Are you as quick as a spinning coin?

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Measuring Area 76
What's a square foot?

Square Units 81
Can a rectangle have an area of one square foot?

Lizzie's Scrapbook 86
What's a tangram?

Right Triangles 88
How can knowing the area of a rectangle help you find the area of a right triangle?

Triangle Area 93
How can knowing how to find the area of a triangle help us find the area of other shapes?

Math Meet 98
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Definitions 14

How many different definitions do you know for the word "point"?

Measuring Angles 19

How many degrees are there in a right angle?

Parallel and Perpendicular 25

Which sides of rectangle ABCD are parallel? Which are perpendicular?

Symmetry 31

Can you draw a quadrilateral that has reflectional symmetry, but not rotational symmetry?

Carronade 38

Can you sink all of your opponents ships before your opponent sinks all of yours?

Grogg's Notes 39

Can you write your name so that it looks the same right side up and upside down?

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One Part at a Time 42

What is 53×46?

The Algorithm 49

How do you organize your work in a multiplication problem?

The Units Digit 54

What is the units digit of 1,234×56,789?

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Why is 10,010×11,011 easier to compute than 23,323×22,322?

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Exponents 70

Given that $5^4=625$, what is 5^5?

Lizzie's Notes 75

How would you write $11\times11\times11\times11\times11$ as a power?

Order of Operations 76

How do you evaluate $(2+3^3)-5^2$?

Power Play 79

How can the number 81 be written as the sum of a power of 7 and a power of 2?

Perfect Squares 80

How can 2^8 be written as a perfect square?

Math Meet 85

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Binary Island 93

What does the number 10,000 stand for on Binary Island?

Base-2 98

How would you write the base-10 number 117 using base-2?

Grogg's Notes 107

Is the number 5 a happy number? How can you tell?

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Counting 14

This section begins on page 14 and ends on page 18. How many pages are there in this section?

Choices 19

How many different outfits can you make by choosing one of three pairs of pants and one of five shirts?

Venn Diagrams 23

How can 20 students like broccoli and 15 students like asparagus if there are only 25 students?

Factorials 28

Why are there exclamation points all over my math homework?

Alex's Notes 35

How many ways can 5 monsters be arranged in order?

Counting Pairs 36

How many different teams of two monsters can be selected from a group of ten monsters?

Lizzie's Notes 45

Can you find a quick way to add every whole number from 1 to 50?

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Special Quotients 48

What do you get when you divide any nonzero number by itself?

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What is 540,000÷60,000?

Long Division 60

How can you organize your work when dividing large numbers?

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How does Grogg compute 36,063÷9 in his head?

Divisibility 67

What shortcuts can you use to determine whether a number is divisible by 4?

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Anybody want a peanut?

Grid Puzzles 83

How do you solve a Sudoku?

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Can you figure out your opponent's code with less than 10 guesses?

Truth-tellers and Liars 90

Can you figure out who is lying and who is telling the truth?

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Can the Little Monsters win their first regional Math Bowl title?

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Can you name every factor of 48?

The Sieve 22

How many primes are less than 100?

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What comes after 89 in a game of Fizz Buzz?

Divisibility 32

Is 5,500,050 divisible by 9?

Prime Factorization 40

What is the prime factorization of 143?

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Review 50

Can you remember what you've learned?

Adding Fractions 56

What is $\frac{3}{7}+\frac{2}{7}$?

Mixed Numbers 58

If 5 cans hold 16 ounces of Fun-Doh, how many ounces are in each can?

Rummy $\frac{7}{56}$ 63

How could you use a 5, a 6, and an 8 to create a meld equal to $\frac{1}{7}$?

Adding Mixed Numbers 64

How do we add $5\frac{7}{8}+4\frac{3}{8}$?

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Is this what Ms. Q. had in mind?

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How do you subtract $8\frac{8}{9}$ from $15\frac{4}{9}$?

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What strategies do you use to compute with fractions?

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Negatives 80

What temperature is 15 degrees colder than 8 degrees?

Less Than Zero 82

Which is greater: -7 or -15?

Adding Integers 87

How do we add -89+104?

Grogg's Notes 93

What makes an integer an integer?

Subtracting Integers 94

How do we subtract -3 from 5?

Rearranging 100

Why is it sometimes useful to write subtraction as addition?

Lizzie's Notes 109

Can you write an expression that means the same thing as -a-(-b) without using any negatives?

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"Of" 14

What is $\frac{3}{7}$ of 28?

Multiplying Fractions 17

How do we multiply a whole number by a fraction?

Multiplying by a Fraction 22

What is $\frac{5}{8}$ of 3?

Mixed Numbers 26

How can the distributive property help us multiply a whole number by a mixed number?

Story Problem 31

Can Fraction Jackson save the city from certain destruction?

Division 32

What's a reciprocal?

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Decimals 40

What's a decimal number?

Reading Decimals 45

How would you write $\frac{11}{100}$ as a decimal?

Comparing Decimals 50

Which is greater: 7.275 or 7.3?

Lunch 58

How many numbers can you name that are between 3.1 and 3.2?

Alex's Notes 61

Where is 1.316 on the number line?

Adding and Subtracting 62

How do we add and subtract decimal numbers?

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Don't your floors deserve the best?

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Chance 72

What is probability?

Computing Probability 76

How do we represent the probability of an event?

Grogg's Notes 83

What is the probability that Grogg will actually build something in Woodshop this week?

Coins and Dice 84

What is the probability of rolling doubles with a pair of dice?

Flip! 90

After flipping heads 8 times in a row, what is the probability that the next flip will land heads?

Math Relays: Round 1 94

What is the probability of rolling a 6 with a pair of dice?

Channel 5 100

Which teams made it through to compete in the final round of the Math Relays?

Math Relays: The Finals 102

Does Beast Academy have what it takes to win?

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3D 14

What does it mean to be three-dimensional?

Solids 18

What is a triangular prism?

Grogg's Notes 24

What is a Platonic solid?

Nets 26

Can you find two ways to connect four equilateral triangles to make the net of a regular tetrahedron?

Surface Area 32

What is the surface area of a 3-by-5-by-8-inch rectangular prism?

Alex's Notes 39

What is wrong with these drawings?

Volume 40

What formula can be used to find the volume of any prism?

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Review 48

How do we subtract -4 from -5?

Lunch 51

Who's the new student?

Multiplying Integers 52

How do we compute the product of two numbers that have different signs?

Winnie's Homework 59

Why do two negatives always have a positive product?

Carpool 60

If you multiply all of the integers from -9 to -1, will the product be positive or negative?

Dividing Integers 64

What are the rules for dividing positive and negative integers?

Exponents 68

Are -5^2 and $(-5)^2$ equal?

Lizzie's Notes 75

What mistakes might be made by students who memorize rules without understanding them?

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Why won't we use a × symbol for multiplication from now on?

Simplifying 84

Can you simplify the expression $2j+3k+5j-k$?

Isolating x 90

How do we figure out what x is?

Solving Equations 95

Can you find two different ways to solve the equation $5(x-6)=15$ for x?

Carpool 99

What if there's more than one x?

Math Meet 102

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The Middle 14

How much does a run-of-the-mill adult rhinoceraptor weigh?

Average 20

What does the average tell us about a list of numbers?

Averaging 26

What is the average weight of ten 3-gram pearls and thirty 11-gram pearls?

Range & Mode 34

Can you make two different lists that have exactly the same median and the same average?

Stat Stumped 41

In Stat Stumped, is it possible for a group of cards to have a mean of 2 and a median of 3?

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Factors 44

What do you get when you divide $3{,}432=2^3 \cdot 3 \cdot 11 \cdot 13$ by $312=2^3 \cdot 3 \cdot 13$?

GCF 50

What is the largest factor that 126 and 162 have in common?

GCFƎƆƃ 57

If you see a 34 and a 68 in a game of GCFƎƆƃ, what numbers does your opponent see?

LCM 58

What is the smallest positive number that is a multiple of both 30 and 54?

Grogg's Notes 66

How can a Venn diagram help you find the GCF and LCM of two numbers?

Factorials 67

What is the power of 3 in the prime factorization of (36!)?

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How can we add fifths to tenths?

Multiplication 84
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How could you compute $\frac{4}{5} \cdot \frac{7}{9}$?

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How can we simplify $\frac{6}{11} \cdot \frac{3}{10} \cdot \frac{7}{9}$ before we multiply?

Training 96
How do we divide a fraction by another fraction?

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J F M A M J

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(Do not try this at home.)

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