Lyrics to

"Math Songs That I Must Sing"

By Karl Roemer

19 songs – for use in the classroom, home, car, etc.

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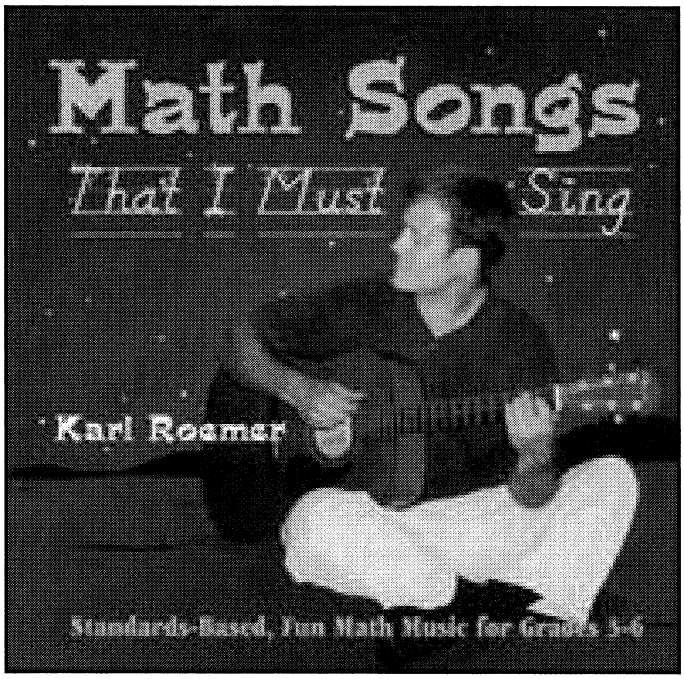


Place Value -"Think in Groups of Three"

Karl Roemer, 2002

For place value of whole numbers,
just think in groups of three,
each group are called periods,
call 'em out like a chimpanzee

each period has ones (1), tens (10), hundreds (100),
and starting from the ones place (or decimal point)
you can look at a whole number
and hoot its value everyplace...

One period means ones (but ya' don't say the ones!)
Two periods mean thousand and ones (let's sit in the sun!)

Three periods mean millions, thousands, and ones (look at Tarzan run!)
And four periods mean billions, millions, thousands and ones...

Ones (1), tens (10), hundreds (100) are in the Ones (that's right!)
One (1) thousands, ten (10) thousands, hundred (100) thousands are in the Thousands (don't bite!),
One (1) millions, ten (10) millions, hundred (100) millions are in the Millions (this food's alright!),
and one (1) billions, ten (10) billions, hundred (100) billions are in the Billions...

thousands				ones		
h	t	o	,	h	t	o

billions				millions				thousands				ones		
h	t	o	,	h	t	o	,	h	t	o	,	h	t	o
		3	,	0	2	5	,	4	0	5	,	8	0	2
(This number has 4 periods- billions, millions, thousands and ones.														
3 billion, 25 million, 405 thousand, 8 hundred two														

(2)

Long Division -"...The Song That I Must Sing..."

(Chorus) This is the song that I must sing,
In order to divide like a queen or king (repeat)...
Divide! Multiply! Subtract! Bring down!
Divide! Multiply! Subtract! Bring down! (repeat)

Division is a most important operation,
It has a cousin called multiplication,
It involves making groups of an equal size,
or making a given number of groups to organize...

$$5\overline{)54} \quad 10 \text{ R. } 4 \qquad -50 \qquad 4 \qquad -0 \qquad 4$$

$$10 \times 5 = 60 + 4 = 54$$

(chorus) This is the song that I must sing...

It's used for measuring packages and sharing things,
partitioning money and making clothing,
calculating speed, average, and given times,
it all can be shown equally on number lines...

(chorus) This is the song that I must sing...

Division and fractions are like close neighbors,
the dividend is the numerator,
the divisor is down in the denominator,
the quotient's the answer and remainder's left over...

$$\frac{54}{5} = 10 \text{ R. } 4$$

(chorus) This is the song that I must sing...

key of Em - 90 time

(3)

Mult Facts -"The Multiplication Facts Doubles Song"

Karl Roemer, 2002

You know going to school is good for you,
So be learners for life, and learn a thing or two,
Because happiness in life lies between your ears,
With a good brain, you can face your fears...
That's right folks, the ticket is a good education,
With intelligence, you can take any tight vacation...
Not knowing the facts, you'll hurt our nation,
So memorize this song, and lead a new generation...

2 x 2 is four (2 x 2 = 4), if you know your facts, you'll want to learn some more...

3 x 3 is nine (3 x 3 =9), if you get it right, you'll smile every time...

4 x 4 is sixteen (4 x 4 = 16), you're such an extraordinary human being...

5 x 5 is twenty-five (5 x 5 = 25), knowing your doubles will keep you alive...

6 x 6 is thirty-six (6 x 6 = 36), you'll go to college knowin' your math lyrics...

7 x 7 is forty-nine (7 x 7 = 49), the more education the better, every time...

8 x8 is sixty-four (8 x8 = 64), you shouldn't be cleaning floors, you could be owning stores...

9 x 9 is eighty-one (9 x 9 = 81), learning is hard work, and can be fun...

So remember the messages of this song,
Armed with these thoughts, you can't go wrong...
You can be anything you want to be,
If with educated minds and loving hearts you see...

Rounding and Estimating-"A Skill Not to Lose"

Roundin' numbers is a skill not to lose
"About how much" or "estimate" we use
Each and every day things can happen to you
that with this know-how you'll work it through

Money, time, food, drinks or capacity
Distance, speed, toys, candy or energy
ya' got to think it through to find your way
and then your life will be a fun one to play...

(Chorus) Underline the digit that you want to round, 4,235
circle the number to its right on the ground, 4,235
write the numbers that it falls in-between 4,200 4,235 4,300
and chant this poem that perhaps you've never seen *(the underlined number is talking)*

ON THE LEFT I STAY THE SAME 4,___
ON THE RIGHT, ZERO'S MY NAME 4,_00
DO I GO UP? THE IMPORTANT DECISION'S MINE
YES, IF MY NEIGHBOR'S FROM FIVE TO NINE...

(In this number, the underlined number's "neighbor" is 3, with a value of 30; it is not between five and nine, so...) 4,200

You see a toy and think, about how much it costs,
your dentist asks about how much weekly you floss,
your momma asks about how much is the supermarket's bread,
about how much food weekly is your dog fed?

About how long will it take you to run home?
About how fast can your bike burn the road?
About how many toys can your family afford?
About how much money is that skateboard?

(Chorus) Circle the digit that you want to round...

(5)

Ordering and Comparing Numbers-"If You Wanna Order and Compare any Numbers..."

(Chorus) If you wanna order and compare any numbers,
there are two steps you can do...(repeat)

(Which is bigger, 1.1 seconds or 0.99?)

Step 1, line up the digits of the numbers, around the decimal point, like this...

1.1
0.99

1 is less than 0, so..
1.1 (>) 0.99

Step 2, begin comparing at the greatest digit place starting from the left, like this...

(Which is bigger, 499 or 501?)

499
501

400 is less than 500, so..

499 (<) 501

Numbers are in daily life and we often, don't comprehend their size,
in order to compare different values, it would help to be number wise...
One hundredth (1/100) of a minute is the time that it takes you to blink, now stop and think;
One tenth (1/10) of a minute is the time when you're at the fountain, and you get yourself a little drink;
One (1) minute is the time that you're at the faucet, and you brush your teeth very well;
Ten (10) minutes is the time of your trip to school, and then you hear the morning bell;

(Chorus) If you wanna order and compare...

Any digit with a "-th" at the ending means a small piece of a whole;
As a minute grows by powers of 10 you'll see that its size will grow and grow...
One hundred (100) minutes is the time that you're in class after lunch and I know that's long;
But one thousand (1000) minutes is the time that you're awake each day and no, that isn't wrong;
Ten thousand (10,000) minutes is the time of your whole week, that's a very long duration;
But one hundred thousand (100,000) minutes is the time of your entire summer vacation!

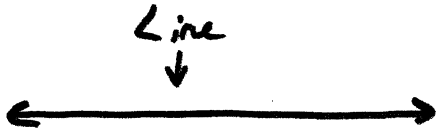
(Chorus) If you wanna order and compare...

It doesn't matter whether they're whole integers, decimals, fractions, or mixed numbers,
if they lie on a number line, then it's easy to compare them to each other...
One million (1,000,000) minutes covers about 2 full years of your life in your home city;
Ten million (10,000,000) minutes is the time from your birth to your start in a university (about 18 years!);
Now one hundred million (100,000,000) minutes spans the existence, roughly, of our nation;
And one billion (1,000,000,000) minutes ago was the period of Roman domination!...

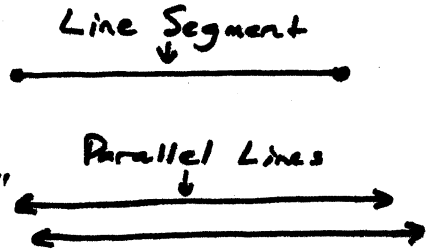
Geometry - "All Your Little Bitty Eyes Can See"

6

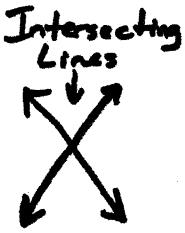
So very important is geometry,
it's about all that your little bitty eyes can see,
a line goes in opposing directions without end
like a straight noodle stretching always with no bend...

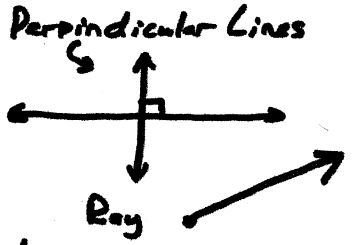


A line segment is a part line with two endpoints
like a line drawn between your shoulder joints,
parallel lines mean lines that never cross,
they'll never touch one another or they'll say, "Get Lost!"

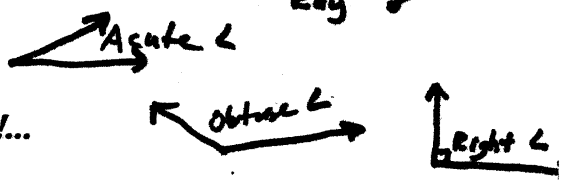


Intersecting lines like to cross in any way,
perpindicular lines cross at right angles every day
a ray continues forever in one direction
like a water stream shot with ever straight projection...

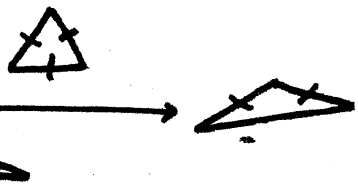




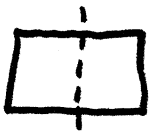
An angle is formed by 2 rays from the vertex,
an acute angle is "cute and little" says the index
an obtuse angle is very big and huge,
a right angle likes it only 90, what an old scrooge!...



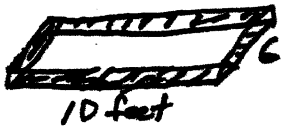
Triangles can be called by the lengths of their sides,
equilaterals are happy cuz' they're all the same size,
isosceles has two equal sides and another,
the scalene says, "none of us are equal, no bother!"



A radius goes from the center to a point on a circle,
the diameter shoots straight through the circle full,
for congruent same size and shape are the key,
for line-symmetry, you can fold it equally...



Now it's very important for you to remember
perimeter means "plus" for every classroom member,
just add all the sides of the entire shape,
it's like a fence or a cage for a big strong ape



Perimeter = 10 ft + 10 ft + 6 ft
= 32 ft

The area involves measurements that are square
what's the carpet square feet for that ape in there,
I know it's hard to see an ape cage with carpet,
just remember "A" means multiply (A = lw), and don't pet it...

A = length × width
= lw
= 10 × 6

(7)

Finding Averages -"The Average Means Normal, Typical..."

(If Ronaldo scored 3, 2, 4, and 3 goals in 4 games, what was his average goals scored per game?)

(Chorus) From a set of numbers to find the average outcome,
you first add all of these numbers, to get a sum,
then you divide this sum by the number of values seen,
and then this answer gives the average, the mean...

① 3 + 2 + 4 + 3 = 12

$4\overline{)12}$ = 3

The average means normal, common, usual, typical, ordinary,
the Dow Jones average gives us info that is necessary,
we can use these averages to invest our money in the stock exchange,
or figure the odds of winning the lottery are out of range...

The average, or mean goals scored for Ronaldo is 3...

(Chorus) From a set of numbers to find the average outcome...

Averages are used to describe players in sports like baseball,
or to predict the weather in the winter, spring, summer or fall,
they can tell the typical math scores of your school's different classes,
or show the normal running speed of the students with eyeglasses!...

(Chorus) From a set of numbers to find the average outcome,...

Customary Units of Capacity		
1 pint (pt)	=	2 cups (c)
1 quart (qt)	=	2 pints
1 quart (qt)	=	4 cups
1 gallon (gal)	=	4 quarts
1 gallon (gal)	=	8 pints
1 gallon (gal)	=	16 cups

(8)

Measurement -"Measure It Rather than Memorize It"

Just stick these customary measurements in your computer brain,
1 foot (ft) = 12 inches (in),
1 yard (yd) = 3 feet (ft) of rain,
1 mile (mi) = 5,280 feet (ft), quite a long train...
1 cup (c) = 8 fluid ounces (oz),
1 pint (pt) = 2 cups (c) of juice,
1 quart (qt) = 2 pints (pt),
so then 1 quart (qt) = 4 cups (c) for a goose,
1 gallon (gal) = 4 quarts (qt) or 16 cups (c), for a big 'ole moose

Customary Units of Length		
1 foot (ft)	=	12 inches (in.)
1 yard (yd)	=	3 feet
1 yard (yd)	=	36 inches
1 mile (mi)	=	1,760 yards
1 mile (mi)	=	5,280 feet

Customary Units of Capacity		
1 pint (pt)	=	2 cups (c)
1 quart (qt)	=	2 pints
1 quart (qt)	=	4 cups
1 gallon (gal)	=	4 quarts
1 gallon (gal)	=	8 pints
1 gallon (gal)	=	16 cups

(Chorus) Measurement is best learned by doing, rather than memorizing;
running track and field, or, measuring your dress for sizing;
doing things like home cooking, or, science project with journalizing...

Just take these metric measurements, and use 'em like a maid uses cleaners,
1 centimeter (cm) = 10 millimeters (mm),
1 meter (m) = 100 centimeters (cm),
1 kilometer (km) = 1,000 meters (m), take your horse and stampede her!
1 liter (L) = 1,000 milliliters (mL), this is a capacity measure,
1 kilogram (kg) = 1,000 grams (g), this weight in gold is treasure
and don't forget that
1 ton (T) = 2,000 pounds (lbs), it's not a feather!

(Chorus) Measurement is best learned by doing,...

Metric Units of Length		
1 centimeter (cm)	=	10 millimeters (mm)
1 decimeter (dm)	=	10 centimeter
1 meter (m)	=	10 decimeters
1 kilometer (km)	=	1,000 meters

Metric Units of Capacity		
1 liter (L)	=	1,000 milliliters (mL)

Fractions, Decimals, and Mixed Numbers - "They're All Connected"

Decimals, Mixed Numbers and Fractions are close and remember, they're all numbers that are based on comparisons of 2 numbers...

In a fraction the "numerator" means "nube" which is Spanish for "clouds",

the "denominator" means "down", just think of him as not very proud...

$\frac{3}{4}$

(chorus) All fractions are based on a whole (which is 1) and a set number of equal parts (denominator)

$= \frac{3}{4}$

They can be used to show parts of the whole, or the parts of a whole set on a chart,

or

$= \frac{3}{4}$

Decimals are a special type of fractions, with denominators that are powers of 10,

$\frac{3}{4} \times \frac{25}{25} = \frac{75}{100} = 0.7$

One half (1/2) is five tenths (0.5), fifty percent (50%),

One quarter (1/4) is twenty-five hundredths (0.25), twenty-five percent (25%)

In measurement with more decimal place values, the more precise can measurements be,

3.75 inches instead of aroun 3 inches, is a more precise measurement...

you'll discover later on that there's always a more precise measurement to see,

the decimal point tells that whole numbers are to the left, and the decimal parts to the right,

3.75

whole number

decima parts

any decimal greater than 1 has an equivalent mixed number or (improper) fraction to write... $3.75 = 3\frac{75}{100} = \frac{375}{100}$

(chorus) All fractions are based on a whole (which is 1)...

Percent and Ratio - "Percent and the President"

The number 100 seems to be our favorite amount,
and I don't know cuz' it takes so long to count.
"The ratio of a number to a hundred" is "percent"
comprehend this term and you could be the President...

When you eat out, the servers are entitled to a tip,
if ya' don't give it they just might kick ya' in your hip;
so use percent to figure what you give away,
15-20% will surely make their day...

(chorus) Percent is based on 2 figures that need to be known,
you absolutely need 'em like a dog needs a bone.
We use it for comparisons between quantities,
it helps us be smarter, yes siree...

These terms are when two numbers are compared by division -
rates, ratios, decimals, percents, and fractions;
they're all related like your sister to you,
or your brother or your cousin or your nephew too...

Ratios are used in scales and in maps,
so we get to our location without mishap;
Don't it feel good to know where you are,
or you might feel like a frog in front of a car...

(chorus) Percent is based on 2 figures that need to be known,...

Double Digit Multiplication - "Stay in Your Place, Don't Fall on Your Face"

54
×23

(chorus) Oh, when you multiply,
ya' gotta stay in your place,
don't fall on your face,
ones (1s), tens (10s), hundreds (100s) at a time,
don't step out of line...

The first step, multiply by the bottom ones (1s) digit,
ya' write ya' answer,
underneath the bottom ones (1s) digit,
and ya' write your answer going to the left...

54
×23
162
108
1,242

(chorus) Oh, when you multiply,...

The second step, multiply by the bottom tens (10s) digit,
ya' write ya' answer,
underneath the bottom tens (10s) digit,
and ya' write your answer going to the left...

(chorus) Oh, when you multiply,...

Mathematical Expressions -"To Formulate Helps to Calculate"

The reasons that we write mathematical expressions,
is to understand certain life situations,
things send us to an utter state of confusion,
but with this knowledge, we can draw our own conclusions...

As we get older these expressions we can use,
to solve any problems or projects that we choose,
managing money or even marketing some shoes,
or building something with materials not to lose...

(chorus)
TO SIMPLIFY EXPRESSIONS, WE FIRST WORK INSIDE THE
PARENTHESES;
SECONDLY, WITH THE EXPONENTS, WE REWRITE ANY
THAT WE SEE;
THIRDLY, MULTIPLY AND DIVIDE, FROM LEFT TO RIGHT, IF
YOU PLEASE;
AND FINALLY, ADD AND SUBTRACT, FROM LEFT TO RIGHT,
YOU CAN GUARANTEE...

$2^2 + 3 \times 2 - 8$

$= 6 + 2^2 + 3 \times 2 - 8$

$= 6 + 4 + 3 \times 2 - 8$

$= 6 + 4 + 6 - 8$

$= 16 - 8$

$= 8$

It may take some time for us to learn to formulate
algebraic expressions that we use to calculate,
so memorize the order of operations really great,
to simplify expressions and then to celebrate

Bob has 3 more than Tom:

$b = t + 3$

the fact that you can be whatever you want to be,
a chemist who discovers the cure for HIV,
a banker who helps his clients make a lot of money,
an architect who fashions buildings by the sea...
(chorus) TO SIMPLIFY EXPRESSIONS...

Mathematical Properties -"The Commutative/ Associative/Distributive/Zero Property Means..."

When you add or times 2 numbers or variables, $5+7=7+5$
the commutative property means,
that when you change the way that they are ordered, $8\times4=4\times8$
the result stays the same...

When you add or times 2 numbers or variables, $(5+7)+3=5+(7+3)$
the associative property means,
when you change the way that they are grouped, $(8\times4)\times2=8\times(4\times2)$
the result stays the same...

(Chorus) The word "property" in Math simply means
"having common features or characteristics,"
study them for yourself, so for you they're realistic!

When you multiply 2 addends by a factor, $4\times7=4(5+2)$
the distributive property means, $=4(5)+4(2)$
that you multiply each by the factor and add em, $=(4\times5)+(4\times2)$
and the result stays the same... $=28$

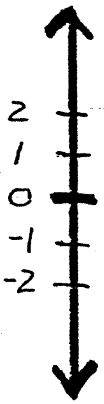
When you multiply a number/variable by 0,
the zero property means, $8\times0=0$
that the answer is always zero,
and this result stays the same... $1,001\times0=0$

(Chorus) The word "property" in Math simply means...

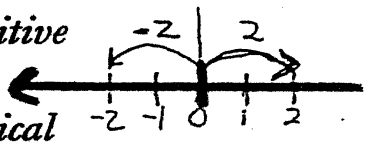
Negative/Positive Integers -"Negative is the Opposite of Positive"

Negative numbers are used in several examples in every day life,
A football player who loses 3 yards on a run gained -3 yards,
Anyone who's been in -20 degrees knows it cuts like a knife,
if you owe more money than you have saved up, then you're in debt which can be hard...

DEBT



(chorus) Negative numbers are the opposite of their positive distance from zero,
On a horizontal line they're to the left of zero, on a vertical they're below,
Any negative number plus its positive opposite will always equal zero day and night, (-2) + (2) = 0
Two ways you say "negative 4" is "the opposite of 4" and "4 below zero," that's right... (-4)



The best example of a vertical number line is a thermometer you hold high,
when the temperature's below 0 degrees Celsius, any water around will freeze,
when the temperature increases above 0 degrees this very water will liquefy,
so just remember 0 Celsius is equal to (in Fahrenheit) 32 degrees...

(chorus) Negative numbers are the opposite of their positive distance from zero,...

Coordinate Grid Graphing -
"Multifaceted Reasons for Coordinate Grids"

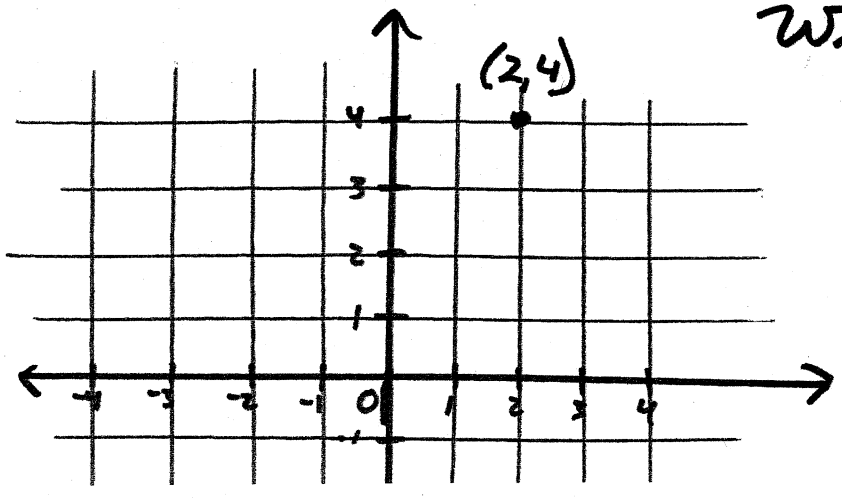
To graph points on a coordinate grid,
the thought that pops in my mind is,
I played this on a trip;
this reminds me of the game "Battleship"...

Yes, the uses are multifaceted,
its functions lie in various things like planning an economy,
making maps, or studying astronomy

In the discipline we call algebra,
we can analyze how different factors
in functions do interrelate,
so we make decisions that are first-rate

Whether finding our way using city maps,
locating a star or constellation up in outer space,
knowing the wind speed on our skydiving face...

(chorus) To locate ordered pairs, first the x-coordinate is horizontal,
and second, the y-coordinate of this ordered pair is vertical...



y coordinate

Where is (2,4)?

x-coordinate

Probability -"Probability Has Great Possibility"

2, 4, 5, 5, 6, 8, 19

Oh, this is a song about probability,
and if 'ya learn it, your success is a great possibility...

Oh, the mean is the average, the mean is the average, the mean is the average, (and if ya' remember what the mean means, well, maybe I'll give ya' some of my...pork and beans!)

2 4 5 5 6 8 +19 = 49

7 ⟌ 49 = 7

Oh, the median is the middle, median is the middle, median is the middle, (and if ya' remember that the median is the middle, why, maybe I'll play ya a song..on my fiddle!)

→ 2, 4, 5, (5), 6, 8, 19

Oh, the mode is the most, the mode is the most, the mode is the most, (and if ya' remember that the mode is the most, why, maybe I'll give ya some of my...french toast!)

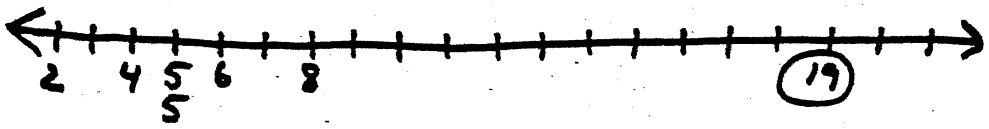
→ 2, 4, (5, 5), 6, 8, 19

Oh, the range is the difference, the difference between, the greatest and the least (and if ya' remember that the range is the difference between the greatest and the least, then...let's have a feast!)

→ 19 − 2 = 17

Oh, the outlier is the number that is farthest from most of the data (and if ya' remember that the outlier is the number farthest from most of the other data, than, then this song's done...!)

2, 4, 5, 5, 6, 8, (19)

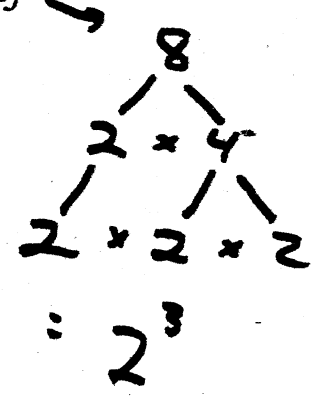


Prime/Composite Numbers and Prime Factorization - "2, 3, 5, 7..."

(2, 3, 5, 7) Knowing prime and composite numbers through a little calculation,
is important in having a sound mathematical foundation
It helps you to figure out fractions in simple terms, I guarantee
and identify the greatest common factors taking time for your
biscuits and tea (as the English people do at three...in the afternoon, yessiree...)

"Prime" means having a "pair" of factors which is 2 and don't ignore,
7: 7×1
Factors: 1, 7
and "composite" means a "crowd" of factors, which is 3 or more,
8: 8×1, 2×4 / Factors: 8, 1, 2, 4
prime factorization's a number that's written as a product of primes,
the first four primes you'll learn through practice in time...
(like your English friends at tea time...)
(oh, how very sublime...)
(can you hear the bells chime?...)

(2, 3, 5, 7...)



Equivalent Fractions, Simplest Terms - "Keep Your Equivalent Fractions Simple"

We use fractions in every day life,
in cooking, measuring, or cutting with a knife...
Because understanding fractions real quick,
is done by pictures, and/or arithmetic...

For simplest terms and equivalent fractions,
to "keep it simple" means people satisfaction...
You don't say "here's five-tenths (5/10) of a pound;"
you say "here's one-half (1/2) pound of beef that's ground!"

$\frac{3}{4} \times \frac{5}{5} = \frac{15}{20} \times \frac{2}{2} = \frac{30}{40}$

(chorus) To write equivalent fractions,
you simply multiply top and bottom by the same,
for simplest terms, there's a number of strategies
to figure it out like a game...
You can find the greatest common factor (GCF)
of the numerator and denominator and divide,
or just keep dividing the top and bottom
by the same factors you decide...

What is $\frac{15}{20}$ in simplest terms?

Factors of 15: 1, 15, 3, 5 (1×5) (3×5)

Factors of 20: 1, 20, 2, 10, 4, 5 (1×20) (2×10) (4×5)

(5 is GCF...)

$\frac{15 \div 5}{20 \div 5} = \frac{3}{4}$

$\frac{30 \div 2}{40 \div 2} = \frac{15 \div 5}{20 \div 5} = \frac{3}{4}$

Adding and Subtracting Fractions - "Compute with Like Denominators"

Adding and subtracting many fractions is a skill we use everyday,
looking at the measurements of height, weight, or distance in the sports we play,
or in buying and preparing the ingredients of the food that we can make,
the LCM or the "Least Common Multiple" is the key, make no mistake...

$$\frac{1}{4} + \frac{2}{3}$$

(take a deep breath!)
Change all the fractions to like denominators with a pen, by writing the multiples in line, finding the LCM, which is the LCD to find equivalent fractions, figuring the answer and writing in easiest fashion (or simplest form)...

4 - 4, 8, (12) 16...
3 - 3, 6, 9, (12) 15.
Least Common Multiple

$$\frac{1}{4} \xrightarrow{\times 3 \atop \times 3} \frac{3}{12}$$

Least Common Denominator (LCD)

$$+ \quad \frac{2}{3} \xrightarrow{\times 4 \atop \times 4} \frac{8}{12}$$

$$\frac{11}{12}$$