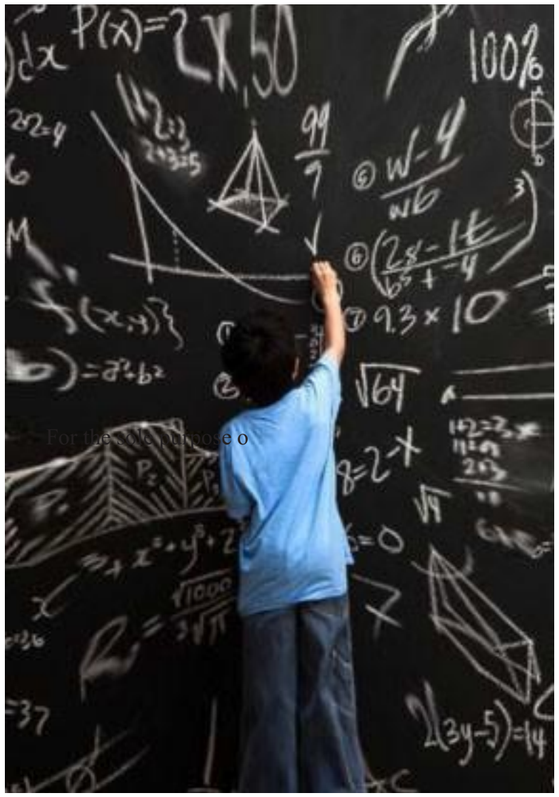


Math for the Talented and Gifted

By James Paicopolos

December 2018

GIFTED MATH

The gifted child's understanding of Math, critical-thinking ability, and mathematical interests can range far beyond his or her grade level.

Grades

K-7

MATH FOR THE TALENTED AND GIFTED

Math for the Talented and Gifted Child

Series One: Numeration and Operations

Introduction

Congratulations on getting a copy of this book ***Math for the Talented and Gifted Child,*** This series was developed for Classroom and Home school programs. It explores counting, addition, subtraction, multiplication and division in a fun, innovative way. Although this book is designed for exceptionally bright children, it can also be used by teachers in the classroom or by parents at home.

Jim Paicopolos has taught in Mexico, USA and China. He observed first-hand how Chinese education differs from American Education. While teaching in Nanjing Child, he first learned from the Chinese Public School teachers, he worked with, the Chinese way of teaching math. According a report published by the International Association for the Evaluation of Educational Achievement, third- graders in China are almost equivalent to U.S. high school students in math and science. Yes, it's true, eight year-olds in China are doing what our 14-18 year-old American High School students are doing in Algebra and Geometry. With the goal of closing this learning gap, this book integrates the best Chinese educational practices with the best American educational practices.

You may be wondering, how do you teach a 5-8 year-old advanced math concepts?

Confucius in his teachings, states that a teacher guides his students but does not pull them along; the teacher encourages them to go ahead and does not chastise them; The teacher opens the way, but does not lead them to the concept. Guiding the child without pulling or shoving the child along is the process of learning gentle; urging without suppression and makes the process of learning easy; thus opening the way without leading the student to the next chapter in the math book but instead makes the students think for themselves. When the process of learning is made gentle and easy and the students are encouraged do and to think for himself/herself, we may the call the teacher a master of teaching.

Unfortunately too often instead education “it top to bottom” where the classroom teacher has little input into her own classroom and instead must follow the what the powers that are all knowing and seeing. Is the teacher dares to listen to the sound of a different drummer, they risk and fear getting a bad evaluation. In reality the best teachers, who really know how to teach math so that learning really takes place are “put out to pasture” while corporate driven education supplants innovation an true teaching ability.

Only when one comes to be dissatisfied with his own knowledge, and only through teaching of others does one come to realize the uncomfortable inadequacy of his knowledge.

It is when the child not the teacher becomes dissatisfied with his own knowledge, then he is able to realizes that the trouble lies with himself, and realizing the uncomfortable inadequacy of his knowledge, one then feels stimulated to improve himself.

son, and has developed lesson plans that deliver the advanced content in a developmentally appropriate manner. Hide and Seek Math, Jump to Number Placement, and Speed Math are just a few of the many exciting and physically active ways to teach young children their curriculum.

Overall, this book does not require excessive amounts of study. It is simply written, and is not made to be difficult. Just because your child is having difficulty doing his/ her math homework does not mean that they are not talented in math. There are children who are brilliant in math, yet refuse to do the daily routine work at school. Boredom, and lack of a challenge often emerge as the culprits of this refusal behavior. Our series aims to change all of that!

It has been often noted that Children are very good at math. There are some a logical reason for this. The language of Chinese and the use of symbols is can be said makes math a whole lot easier to learn.

For example:the number go after are said literally in Chinese as 10+1, 10+2, 10+3.... So the Chinese child, when learning to count are literally learning to add at the same time. The concept of using symbols to represent expressions can seen in the use of chinese charecters, and Chinese being a tonal language gives yet another advantage.

As the lessons here are being taught.The examples here are idea and concept input. Teach each lesson until your student masters the concepts before moving on. Math is a language of it's on self. Until the student masters the language, they will struggle if you move onto the new concept.

Math refusal usually often occurs when the child does not know what you are saying. A lot of math computer programs will put in a lot of politically.

Table of Contents

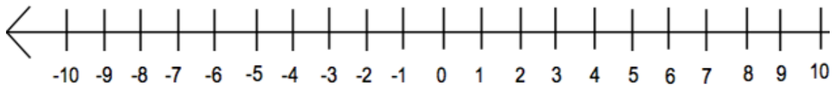
Chapter I
Numeration

Numeration means Counting. That is all it means, just counting.

Zero means nothing. Here is a zero: 0. Yes "0" means nothing. A circle represents nothing in the number line.

Numbers in front of a zero are positive. Numbers before the zero are negative, and have a minus sign in front of them.

Another way of saying that is: numbers to the right of the zero are positive, and numbers to the left of the zero are negative.



This is the positive Number 64 because there is no minus sign before it.

And

This is the Negative Number 64 because there is a minus sign

before it.

64 – 64 = 0

And

64 + - 64 =0

And

64 + (-64) = 0

But

64 + (+64) = 128

And

64 + 64 = 128

But wait !!!!!!!!!!!!!!!!!!!!!!!!!

What is this below?

64 - - 64 = 128

And

64 – (-64) = 128

Two negatives equals a positive.

And

-64 + -64 = -128

and the opposite would be

64 + 64 = 128

Math Work

Say the numbers one to ten out loud. Write or trace the numbers one to ten neatly in your note book.

1 2 3 4 5 6 7 8 9 10

One, two, three, four, five, six, seven, eight, nine, ten

Say the numbers "negative one" to "negative ten" out loud. Also known as "minus one" to "minus 10". Write or trace the numbers "minus one" to "minus ten" in your note book.

-1 -2 -3 -4 -5 -6 -7 -8 -9 -10

Negative one, negative two, negative three, negative four, negative five, negative six, negative seven, negative eight, negative nine, negative ten

You can do it! It's easy with practice.

We are using ten numbers, also called **Base Ten**, because there are only ten different number symbols to write: 0 1 2 3 4 5 6 7 8 9

All written numbers only include zero through nine! Wow, amazing!

Here are some different examples: 21 39 56 72 120 247

604 1,249

Numbers go on forever. That's called infinity. Very cool.

Now count the numbers 1-50 out loud. Great job!

Here are the next numbers to say 5 times. Just do it, you are doing Numeration!

10	100	1000	10,000	100,000	1,000,000
ten	one-hundred	one thousand	ten thousand	one hundred thousand	one million

Remember, we are using **Base 10**, because there are only 10 different number symbols.

Count your fingers to see if you really have ten!!!!!!!!!!!!!!!!!!!!!!!!!!

Yeah, you are counting using base ten! Only ten number symbols. No more. Look again: 0 1 2 3 4 5 6 7 8 9

Remember, zero means nothing. No objects. Nothing to count!!!

"None", "empty" and "not anything" mean the same thing as zero. They're synonyms.

So, it is normal to count using our fingers, using one after the other like this:
1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

Now let's count by 2's:

2 4 6 8 10 12 14 16 18 20

Now count by 5's:

Now count by 10's:

10, 20, 30, 40, 50, 60, 70, 80,
90, 100

Now count by 9's:

Wait! Look! The 9's are special, because when you add each number, it equals 9!

Check it out:

9 9+0 = 9
18 1+8 = 9
27 2+7= 9
36 3+6= 9
45 4+5= 9
54 5+4= 9
63 6+3=9
72 7+2= 9

81 8+1=9

90 9+0=9

See, all these numbers add up to 9! Cool!!!

Now let's count by tens.

Say the tens out loud!

10 20 30 40 50 60 70 80 90 100

As you can see, numbers mean "how many!"

Count your fingers! Count books! Count pencils, count pens, count desks, count pennies, count quarters, count dollars. Count whatever you want! It's fun!

If you practice counting, you'll get better and better! You're on your way!

Numbers mean "how many", and when you count objects, you can put them in order.

This is called Ordinal Numbers!

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eight	Ninth	Tenth

Ordinal Numbers are the words you use to place numbers in a certain order.

Here are some examples:

"I want to be first (1st) to go on the ride."

"I placed second (2nd) in the running race."

"It was the third (3rd) time that I rode my bike."

"The girl was the fourth (4th) person to win the spelling bee."

"The boy counted up to the fifth (5th) planet, Jupiter."

Now let's Practice using Ordinal Numbers.

Create your own sentences using ordinal numbers, and say them out loud.

You can do it!

Now, lets practice writing numbers. **Trace these Numbers**:

Once you are done tracing numbers, practice writing numbers 1 -10 in your notebook.

Then you can practice writing the numbers 1 - 50 in your notebook!

Practice makes perfect!

Chapter 2

Arithmetic Operations: Addition

Addition means combining numbers together. That's all it means.

Hold up 1 finger. Now hold up another finger. You have 2 fingers you're holding up.

You did it! That's addition! It's that simple.

Now get some crayons.

Place 1 crayon on the table, now place another crayon on the table.

You have two crayons. That's 1 + 1 = 2.

Now let's place 2 crayons on the table. Now place another 2 crayons on the table.

Count how many there are altogether.

1, 2, 3, 4. You did it! Two crayons plus two crayons equals 4 crayons.

The way we write that is 2 + 2 = 4.

Try placing 3 crayons on the table. Now place three more crayons on the table.

Do you see six crayons altogether? You did it again!

You have six crayons altogether, because 3 + 3 =6.

Now practice with crayons, fingers, pencils or whatever you want to combine and add together. You're doing addition!

Here are some number combinations to try:

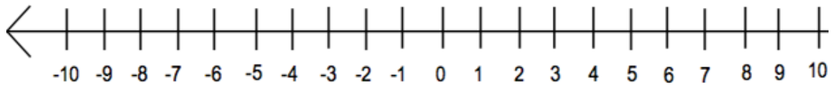
4 crayons plus 3 crayons = how many

2 crayons plus 4 crayons = how many

3 crayons plus 5 crayons = how many

Now let's practice with a number line.

Here, look at this number line to see how easy it is:



1 + 1 =2 Place your finger on the number 1. Now move one to the right. That's 2.

1+ 2 = 3 Place your finger on the number one. Now move two places to the right. That's 3.

1+ 3= 4 Place your finger on the number 1. Now move three places to the right. That's 4

You will always be moving up the number line when adding.

Another way of saying that is you'll be moving to the right.

The answer you get is called the sum.

Now lets's try larger numbers.

10 + 10 = 10 First add the zeros. The zero column is the "ones" place.

+10 Then add the ones. The ones column is the "tens" place.

20

When you're adding numbers with more then one digit, you always start with the numbers furthest to the right.

Then move over left , one number at a time.

Try these:

20 + 20=

20 First add the zeros. 0 + 0 = 0

+20 Then add the twos. 2 + 2 = 4

40

30 + 30=

30 First add the zeros. 0 + 0 = 0
+30 Then add the threes. 3 + 3 = 6
60

40+ 40=

40 First add the zeros. 0 + 0 = 0
+ 40 Then add the fours. 4 + 4 = 8
80

50 + 50 =

50 First add the zeros. 0 + 0 = 0
+50 Then add the fives. 5 + 5 = 10
100

Now let's try different number combinations.

Always start with the numbers furthest to the right, then move over to the left one at a time. You can do it!

12 + 20 =

12 First add two plus zero. 2 + 0 = 2
+20 Then add the one and two. 1 + 2 = 3
32

15 + 10 =

15 First add the five and zero. 5 + 0 = 5
+10 Then add the one and one. 1 + 1 = 2

18 + 30 =

18 First add the eight and zero. 8 + 0 = 8
+30 Then add the one and three. 1 + 3 = 4

19 + 40 =

19 FIrst add the nine and zero. 9 + 0 = 9
+ 40 Then add the one and four. 1 + 4 = 5

Now let's try some more challenging numbers.

1.) 22 2.) 33 3.) 28 4.) 42

+34 +41 +51 +56

Answers: (1.) 56 (2.) 74 (3.) 79 (4.) 98

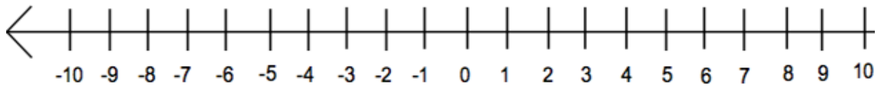
Chapter 9

The word: Subtraction means take away, take something away.

Subtraction is the opposite of addition.

Look at this number line.

The numbers before zero are negative and the numbers after zero are positive. They have the minus sign - and not the + sign.



Look

OR

5 Pennies minus 3 pennies equals two pennies

OR

5 pennies -3 pennies = 2

And

5-3= 2

Practice

$$\begin{array}{r} 20 \\ -\,10 \\ \hline 10 \end{array}$$

Name : _____ Score : ____

Date : _____

9 2	7 - 2	9 - 3	9 - 2	6 - 2	5 - 2
8 - 2	7 - 4	6 - 1	7 - 4	6 - 3	9 - 4
8 - 1	9 - 3	8 - 2	9 - 1	6 - 2	8 - 2
8 - 2	5 - 2	7 - 2	7 - 1	7 - 1	6 - 4

2 Subtraction Facts

1	-	2	=	-1
2	-	2	=	0
3	-	2	=	1
4	-	2	=	2
5	-	2	=	3
6	-	2	=	4
7	-	2	=	5
8	-	2	=	6
9	-	2	=	7
10	-	2	=	8
11	-	2	=	9
12	-	2	=	10

Equals = Means Exactly the Same.

OPPOSITES Cancel out in Math

+ 5 and -5 are opposites

Opposites cancel out 5 + -5 = 0 2+ -2= 0 30+ -30 = 0

5 + -5 = 0 is the same as 5-5= 0

Is the same as -5+5= 0

Borrowing

It is OK to borrow from another number.

LOOK!

$$\begin{array}{r} 25 \\ -\ \underline{18} \end{array}$$

7 we borrowed 1 number from the 2 to make: $\begin{array}{rr} 1 & 15 \\ \underline{-1} & -\ \underline{8} \end{array}$

0 7

Now look at these:

a. 5 tens 2 ones → 4 tens 12 ones

Take away
1 ten, 7 ones.

	4	13
	~~5~~	~~2~~
–	1	7
	3	5

Do these Subtraction Problems ! Remember you have to borrow from the tens column

c. 6 tens 0 ones → 5 tens 10 ones

Take away
3 tens, 9 ones.

	5	10
	6	0
–	3	9

e. 3 tens, 5 ones → 2 tens 15 ones

Take away
3 tens 5 ones from one ten 17 ones

	2	5
	3	5
–	1	7

g. 6 tens, 5 ones → 5 tens 15 ones

Take away
4 tens, 8 ones from 6 tens 5 ones

	6	5
–	4	8

You can Check Your answer by adding the answer from the take away numbers. They should always add up to the numbers on top.

a. ~~5 6~~ (4 16) – 2 7 = 2 9

Check: 2 9 (1) + 2 7 = 5 6

b. 9 0 – 2 8 = 4 1

Check: 4 1 + 2 8 = 9 0

d. 90 – 35	**e.** 82 – 25
j. 55 – 17	**k.** 31 – 18

Regrouping or Borrowing Subtraction Problems

Do these now for Practice.

aaaaa

Name: _____

Subtraction Problems

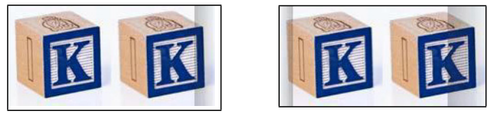
Regrouping sometimes required.

1. 82 − 46	2. 92 − 58	3. 25 − 23	4. 80 − 60
5. 81 − 70	6. 69 − 53	7. 71 − 7	8. 60 − 42
9. 58 − 27	10. 78 − 37	11. 92 − 30	12. 49 − 25
13. 24 − 16	14. 48 − 33	15. 44 − 21	16. 58 − 35
17. 38 − 0	18. 86 − 26	19. 9 − 1	20. 50 − 26

Multiplying is just a simple way of adding the same numbers over and over again.

Multiplication is "Repeat Addition".

For example, say you have two groups of blocks as pictured below.



2 + 2 = 4

And

2 X 2 = 4

But

Set of Two Blocks

Set of Two Blocks

To find the total number of blocks, you could add the total blocks like this:

2 + 2 + 2 + 2 = 8

Or

4 X 2 = 8 or 2 X 4 = 8

Because we are doing repeat Addition!

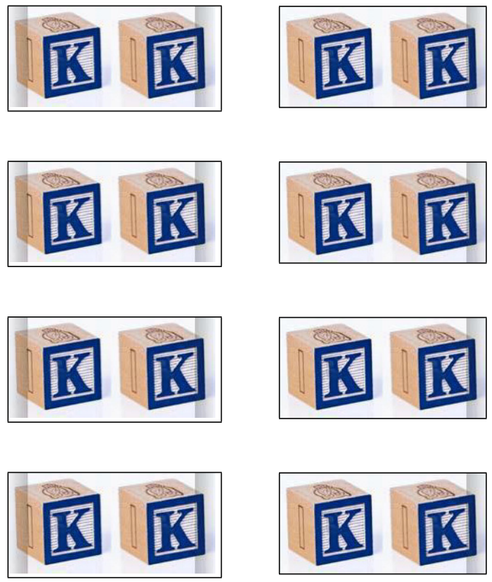
Look!

Set of 3

Set of 3

3 + 3 = 6

3 X 2 = 6



Count or Multiply and you get the same Answer

4 X 2 = 8

2 + 2 + 2 + 2 = 8

Picture the same way by using the "x" sign:

4 X 2 = 8

The "x" sign means "times" and it shows that it is a multiplication problem. Point out that you can also write the problem like this:

You can also write the problem like this :

$$\begin{array}{r} 4 \\ \times\ 2 \\ \hline 8 \end{array}$$

Zero time Zero Equals Zero

Because Nothing times Nothing is Nothing

Any number times Nothing is Nothing!!!!!!!!!!!!!!!!!

Nothing is Nothing no matter how many times you multiply nothing!

Now lets count like this....

0000000000

1 2 3 4 5 6 7 8 9 10

2 4 6 8 10 12 14 16 18 20

5 10 15 20 25 30 35 40 45 50

9 18 27 36 45 54 63 72 81 90

10 20 30 40 50 60 70 80 90 100

11 22 33 44 55 66 77 88 99 110

Counting like this is an easy way to build the times table !!!!

0 x 0 = 0

0 x 1 = 0

0 x 2 = 0

0 x 3 = 0

0 x 5= 0

0 x 6 = 0

0 x 7 = 0

0 x 8 = 0

0 x 9 = 0

0 x 10 = 0

Any number times zero is always zero 1 x 1 =

1

1 x 2 = 2

1 x 2 = 3

1 x 3 = 4

1 x 5= 5

1 x 6 = 6

1 x 7 = 7

1 x 8 = 8

1 x 9 = 9

1 x 10 = 10

Any Number times one is always the same number. Easy!!!!

Multiplying by one is like counting by one's

1 x 2 = 2

2 x 2 = 4

3 x 2 = 6

4 x 2 = 8

5 x 2= 10

6 x 2 = 12

7 x 2 = 14

8 x 2 = 16

9 x 2 = 18

10 x 2 = 20

Multiplying by 2's is like counting by 2

1 x 5 = 5

2 x 5 = 10

3 x 5 = 15

4 x 5 = 20

5 x 5=25

6 x 5 = 30

7 x 5 = 35

8 x 5 = 40

9 x 5 = 45

10 x 5 = 50

Multiplying by 5's is like counting by 5's.

1 x 9 = 9 0+9 = 9

2 x 9 = 18 1+8 = 9

3 x 9 = 27 2+7 = 9

4 x 9 = 36 3+6 = 9

5 x 9=45 4+5 = 9

6 x 9 = 54 5+4 = 9

7 x 9 = 63 6+3 = 9

8 x 9 = 72 7+2 = 9

9 x 9 = 81 8+1 = 9

10 x 9 = 90 9+0 = 9

You write the numbers down put a plus sign and then you write the numbers down.

That is how you know the 9's tables.

0 x 10 = 0

1 x 10 = 10

2 x 10= 20

3 x 10 = 30

4 x 10 = 40

5 x 10= 50

6 x 10= 60

7 x 10 = 70

8 x 10 = 80

9 x 10 = 90

10 x 10 = 100

Just count by ten's and you have the ten's tables. 10 20 30 40 50

60 70 80 90 100

0 x 11 = 0

1 x 11 = 11

2 x 11= 22

3 x 11 = 33

4 x 11 = 44

5 x 11= 55

6 x 11= 66

7 x 11 = 77

8 x 11 = 88

9 x 11 = 99

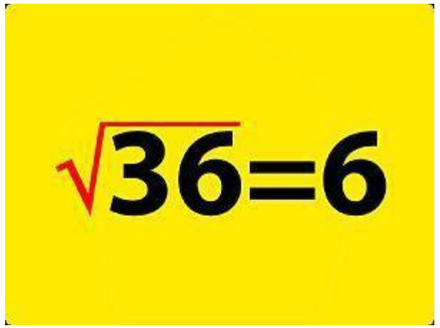
10 x 11 = 110

You count by 11's and you have the 11's tables.

11 22 33 44 55 66 77 88 99

110

Square Root



6 x6 = 36 So the Root is 6

Each of the little squares equals an area of 1.

1	1	1	1	1	1
1	1	1	1	1	1
1	1	1	1	1	1
1	1	1	1	1	1
1	1	1	1	1	1
1	1	1	1	1	1

There are 36 Squares in this box. Six squares equal each side. So the square root of this square is 6.

√ 36 = 6 6 x 6 = 36

√ 25 = 5 5 x 5 = 25

√ 16 = 4 4 x 4 = 16

√ 9 = 3 3 x 3 = 9

√ 4 = 2 2 x 2 = 4

√ 1 = 1 1 x 1 = 1

√ 0 = 0 0 x 0 = 0

Now some bigger square roots

√ 49 = 7 7 x 7 = 49

√ 64 = 8 8 x 8 = 64

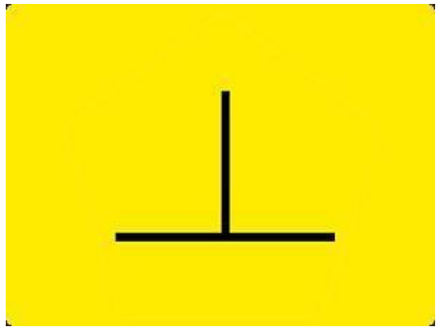
√ 81 = 9 9 x 9 = 81

√ 100 = 10 10 x 10 = 100

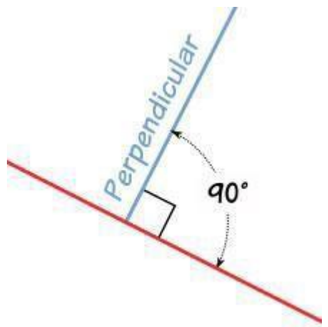
√ 10,000 = 100 100 x 100 = 10,000

√ 1000,000 = 1000 1000 x 1000 =1,000,000

Math Things to Know

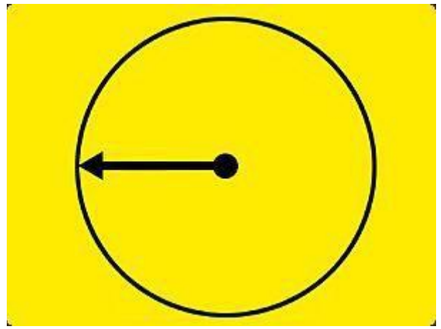


Perpendicular

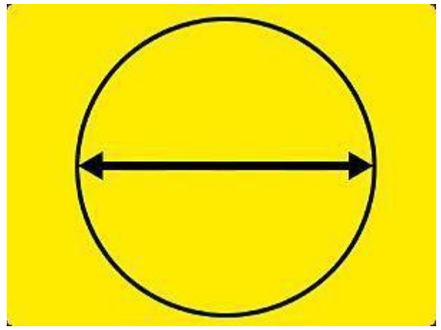


You can see it has two right angles

Angles that are 90 degrees are called Right Angles



Radius



Diameter

Π = 3.14

Pie = 3.14

$$C = 2\pi r$$

Circumference of a Circle is equal to 2 x 3.14 x Radius

$$C = 2\pi r$$

If the Radius is 10

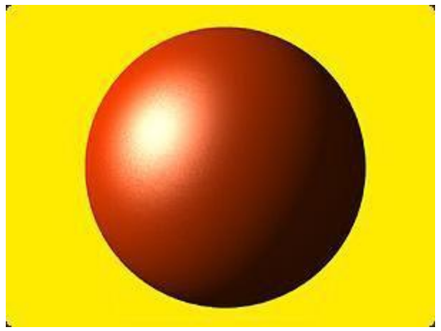
C = 2 x 3.141 x 10

C = 62.82

$$A = \pi r^2$$

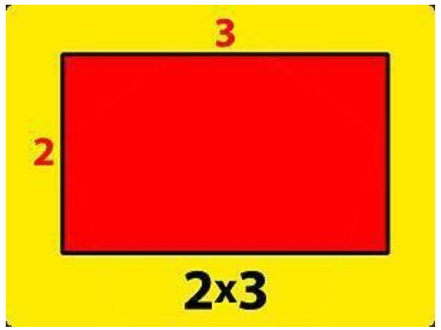
Area of a Circle is equal to π x Radius Squared.

$A = 3.141 \times 5^2 = 78.52$



And this is called a Sphere.

The Earth is a Sphere and so is the Sun and all the Planets.



The formula for the Area of a Rectangle is

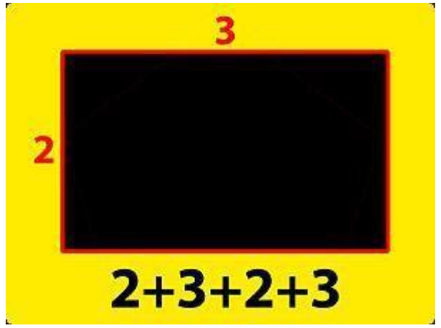
Area = Base X Height

Or

A = BXH

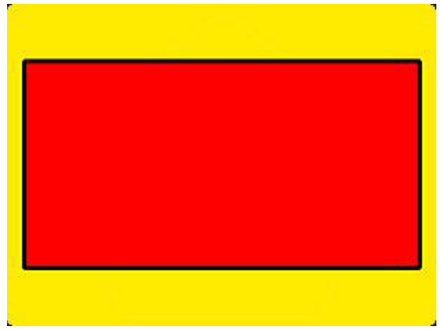
Or

A = bh



To Get The Perimeter of a Rectangle You have to go all the way around the rectangle and add the numbers up.

The Perimeter of this rectangle is 10.



If the base of this rectangle is 10

And the height is 5 then What is the Perimeter?

What is the Area?

Answer for Area is below.

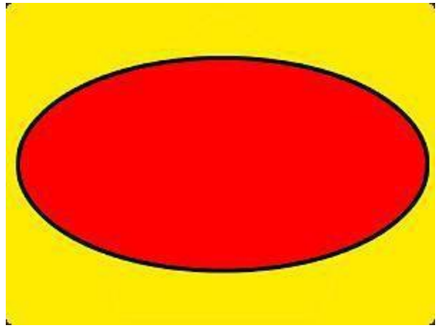
Area equals base x height or A =BxH A= 10 x 5 = 50.

ANS for Perimeter.

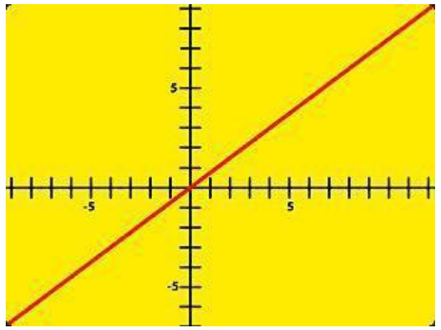
Perimeter equals Side 1 + side 2 + side 3 + side 4.

P= 5 + 10+5+ 10 = 30

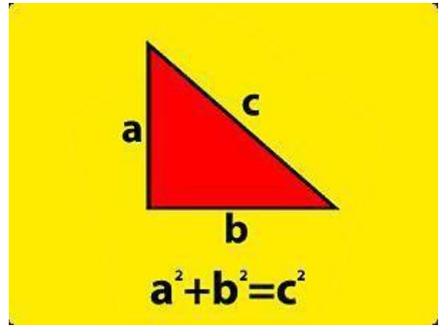
The answer for the perimeter of this rectangle is 30.



This is called an Ellipse

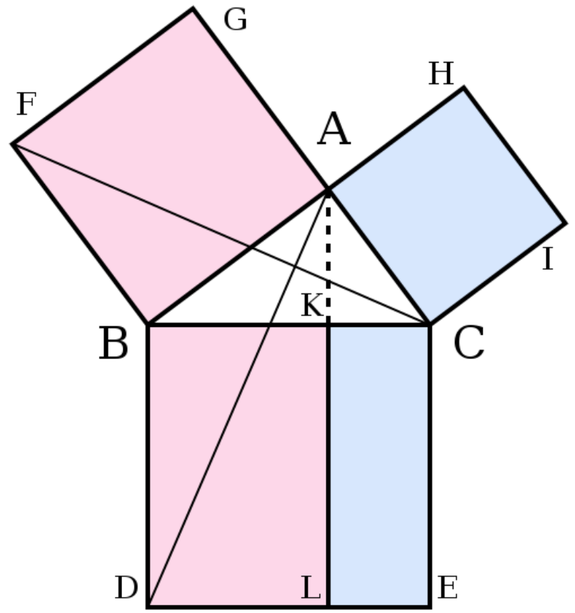


This is called a graph.

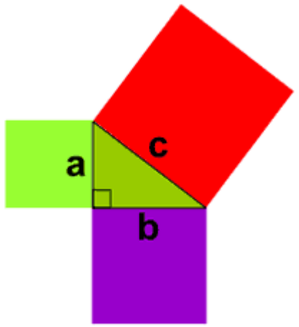


This is called a Right Triangle

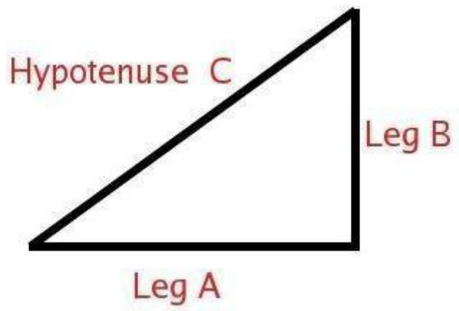
If the length of both *a* and *b* are known, then *c* can be calculated as: $c = \sqrt{a^2 + b^2}.$



It can Look Like This.



Or it can look like this.



The longest side is called the Hypotenuse or C.

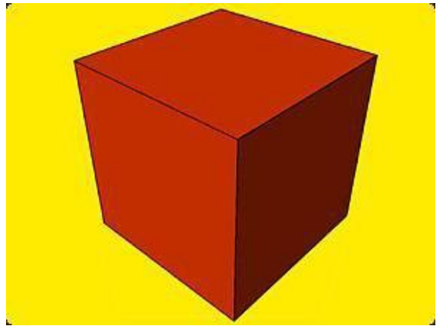
$C = \sqrt{A^2 + B^2}$

$C = \sqrt{3^2 + 4^2}$

$C = \sqrt{9 + 12}$

C = √ 25

C = 5

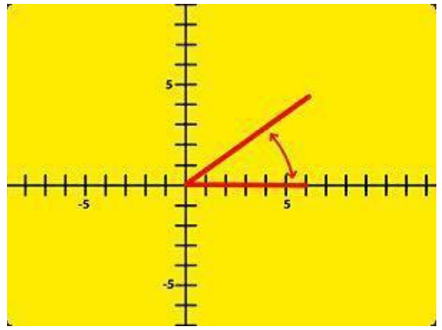


This is a Cube.

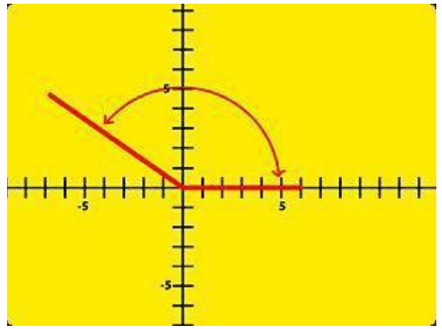
The area of a cube is Lenth X Width X Height

So if the Length of each side is 2

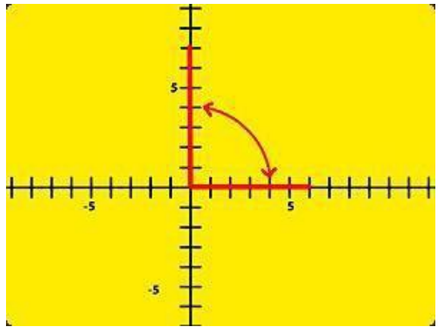
Then L x W x H = 2 x 2 x 2 = 8



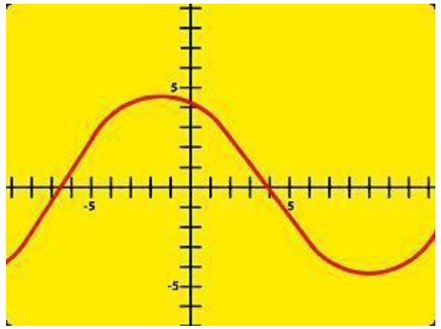
This is an acute angle.



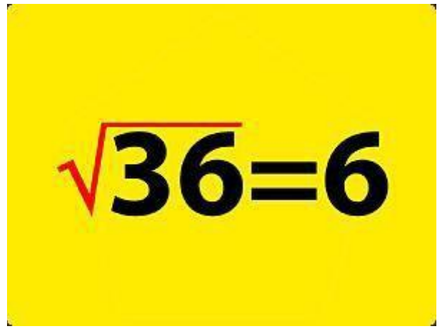
This is an obtuse angle.



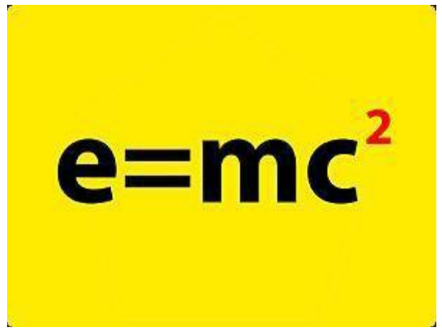
This is a right angle or a 90 degree angle.



This is a sign wave



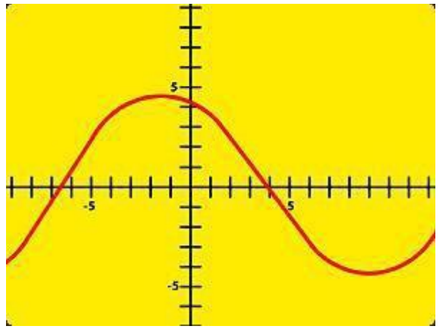
This is a square root formular.



Energy is equal to mass times the speed of light.

Where:

- m = relativistic mass, i.e. mass at the speed it is travelling.
- c = speed of light.
- E = energy



This is a sine wave.

222 + 234 = 456
234 - 222 = 12
324 x 22 =7128
888 / 444 = 2

Numbers can be added

Numbers can be subtracted

And

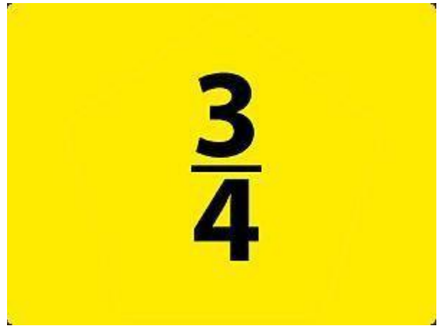
And

Numbers can be multiplied

And

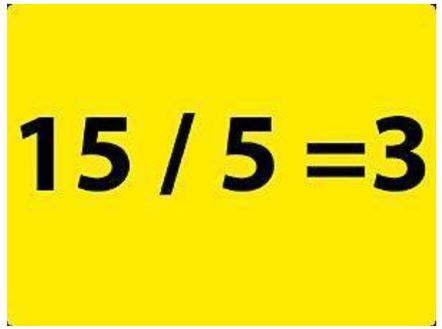
Numbers can be divided

Division and Fractions



This is a fraction

But it can also be looked at a division problem.



15 divided by 5 = 3

15 ÷ 5 = 3

5 x 3 = 15

Long Division can look like this.

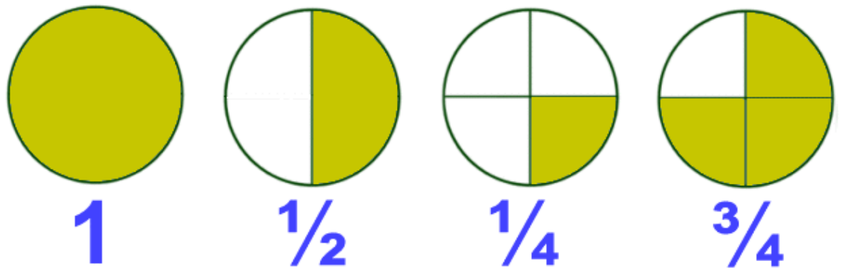
$10\overline{)1000}$ $10\overline{\lceil 1000}$

And fractions can look like this.

⅓ ⅔ ⅕ ⅖ ⅗ ⅘

⅘ ⅙ ⅚ ⅛ ⅜ ⅝ ⅞

Or this.



Which fraction is greater ?

You can see which one has more colored Spaces so it must be greater.

Which fraction is less ?

2/5 is less than 3/8

Which fraction is greater ?

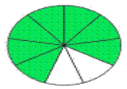
☐ $\frac{2}{4}$ 

☐ $\frac{6}{8}$ 

Try this one on your own.

Which fraction is less ?

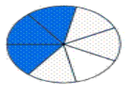
☐ $\frac{3}{6}$ 

☐ $\frac{7}{9}$ 

Now try this one.

Which fraction is less ?

☐ $\frac{7}{10}$ 

☐ $\frac{3}{7}$ 

By Counting the shapes in each Circle, you can see which one is greater and which one is less.

Look at the fractions and matching pictures below.

$\frac{3}{3}$ 

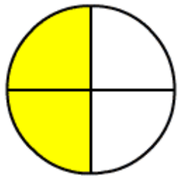
$\frac{3}{4}$ 

$\frac{3}{5}$ 

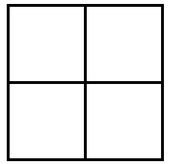
$\frac{4}{4}$ 

$\frac{4}{5}$ 

Circle the correct fraction from the given choices.

1. 

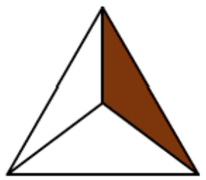
$\frac{2}{5}$ $\frac{2}{4}$ $\frac{1}{4}$

2. 

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

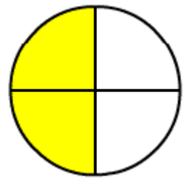
a. 

$\frac{2}{4}$ $\frac{5}{6}$ $\frac{5}{8}$

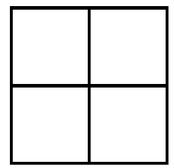
4. 

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

Circle the correct fraction from the given choices.

1. 

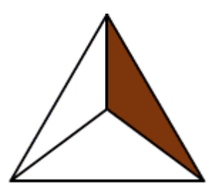
$\frac{2}{5}$ $\frac{2}{4}$ $\frac{1}{4}$

2. 

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

a. 

$\frac{2}{4}$ $\frac{5}{6}$ $\frac{5}{8}$

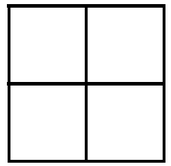
4. 

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

Circle the correct fraction from the given choices.

1. 

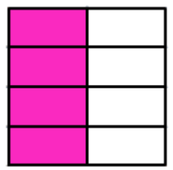
$\frac{3}{4}$ $\frac{2}{3}$ $\frac{1}{4}$

2. 

$\frac{3}{4}$ $\frac{1}{5}$ $\frac{2}{3}$

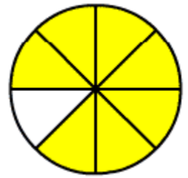
3.

$\frac{2}{4}$ $\frac{4}{5}$ $\frac{5}{6}$

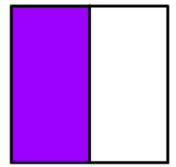
4. 

$\frac{4}{8}$ $\frac{1}{3}$ $\frac{1}{2}$

Circle the correct fraction from the given choices.

1. 

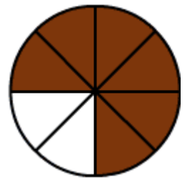
$\frac{7}{8}$ $\frac{5}{7}$ $\frac{6}{8}$

2. 

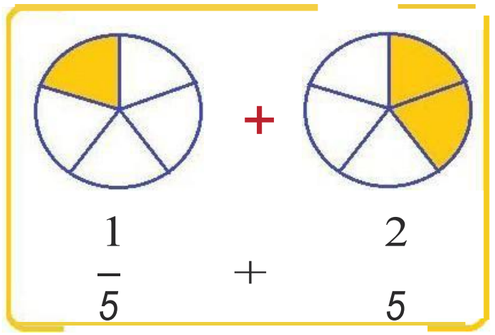
$\frac{4}{6}$ $\frac{2}{3}$ $\frac{1}{2}$

3. 

$\frac{3}{4}$ $\frac{2}{3}$ $\frac{3}{6}$

4. 

$\frac{2}{3}$ $\frac{6}{8}$ $\frac{1}{2}$



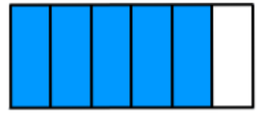
Circle the correct fraction from the given choices.

1. 

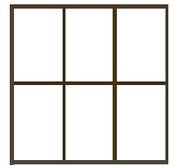
3 3 $\frac{4}{8}$
6 5

2. 

4 1 3
5 3 4

3. 

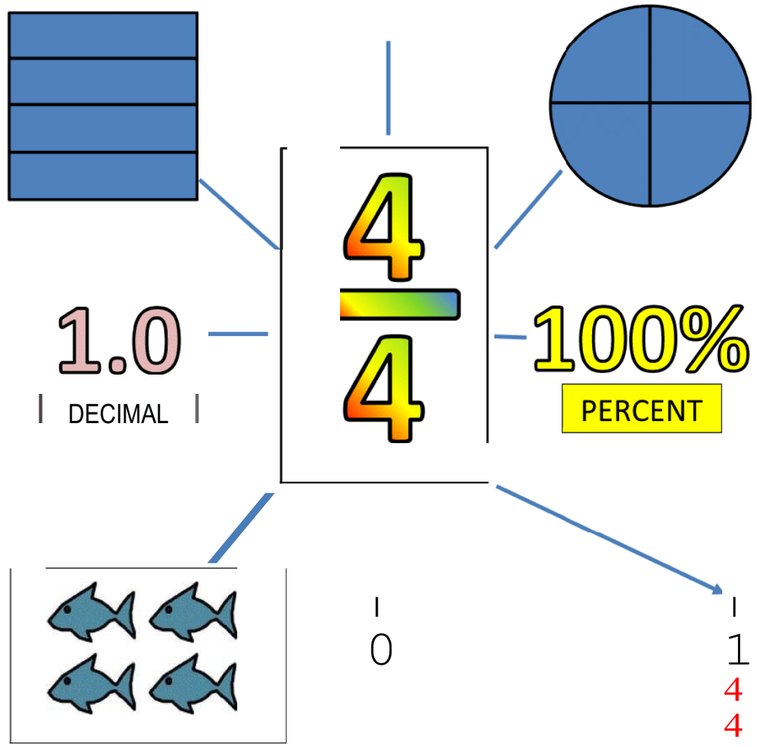
5 3 1
6 7 8

4. 

2 4 3
7 8 6

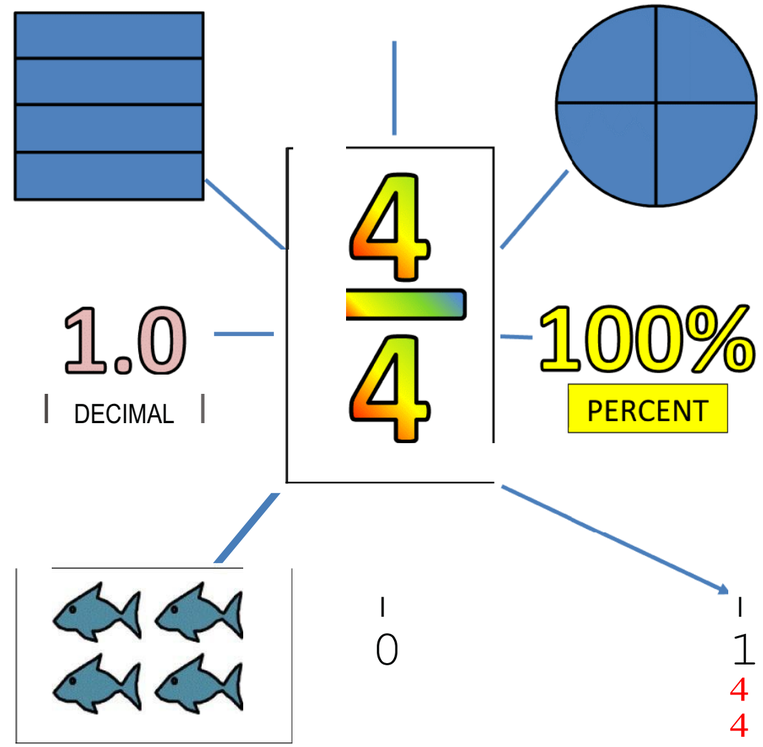
FRACTIONS INFORMATION CARD

Four-fourths



FRACTIONS INFORMATION CARD

Four-fourths



Algebra

Here are the basics of Algebra. Algebra can be seen as a language,that we learn. It is also likens to an intuitive approach like Arithmetic.

1book + 1book make Two books.

So 1x + 1x= 2x or x + x = 2x

For things to be equal, they should be equal:

1+5 = 5+1

5+x= x+5

Now you can try solving this algebraic expression.

5 + 0 is the same as O + X

X= ?

Terms and Factors

A term in an algebraic expression. A term can be an expression involving letters and/or numbers (these are called factors) and multiplied together.

Example 1

The algebraic expression

5x

is an example of one **single term**. It has factors 5 and x.

The 5 is called the **coefficient** of the term and the x is a variable.

6 or any number is also called the **coefficient**.

The Letters X Y and Z are called **Variables**.

Other letters are usually called **constants**.

A **variable** is a number subject to change.

A **constant** is a number that stays the same.

What does 5X really mean. It really means 5 times X or 5 x X or 5 * X

5 x X= 25

So X has to be the number 5 because no other number will fit.

Some more rules of Algebra

The sum of two unknown numbers can be written as

Algebra is a way of working with symbols and number to figureout a mathematics problem It can be looked at a question that uses numbers.

Even a five year old in a way uses algebra.

We use Algebra in everday life.

It answers can answer questions like these:

If Alberto has 15 coins and needs 20 coins to get a game, how many more coins do he need to get the game?

If Thomas has 6 bottles of water and he drinds 1 bottles in a day, how many days will the water last?

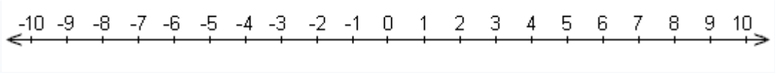
If you start running a race at a speed of 10 ten miles an hour, and your friend starts running 5 minutes later at a speed of 20 miles an hour, when will your friend catch up to you?

Algebra can help figure out things when building a bridge, making a house, and doing computer programming.

What is an Integer??

An integer can be any number, negative or positive, that does not have a decimal point or fraction .

Here is an example of integers on the number line. See that there are no fractions or decimals..



This Number Line between the integers -10 and +10 but it could go in either direction forever. When number go on and on and never end, we can call it the word infinity.

This number line shows the numbers from -10 to (positive) 10. Notice the arrows on either side to show that the numbers continue in both directions even though they are not shown on the line.

Absolute value

The absolute value of a number is the distance from zero (0) to infinity on the digit line. So no matter what signs, the numbers are always positive. It can also be called modulus. The absolute value of a number is its distance from zero (0) on the digit line.

This action ignores the "+" or "-" sign of the number because the distance in math is never negative. You can identify the absolute value of a number by writing a number between two vertical bars, called the absolute value bracket: | number |.

A useful way to think about absolute value is to link it to the railroad track. If you are standing on a railway track, more specifically on any railway track, and marking that point to zero, the railway relationship on the left will represent a negative number and the railway relationship on the right will represent a positive number.

On the negative side of the railway, the number -7 is 7 units away from zero. So, the following is true, | -7 | The number 16 is 16 units away from zero on the positive side of the railway track. So, | 16 | The number 0 is 0 units from zero on the railway track. So | 0 | = 0 Therefore, the absolute value of any number is positive or zero.

Absolute Value

The absolute value of a number is its distance from zero (0) on a number line to infinity.
So the numbers will always be positive regardless of the signs.

It can also be called **modulus** .

The absolute value of a number is its distance from zero (0) on a number line. This action ignores the "+" or "–" sign of a number because distance in mathematics is never negative.

You identify an absolute value of a number by writing the number between two vertical bars referred to as absolute value brackets: |number|.

A helpful way of thinking about absolute value is relating it to a railroad track. If you were to stand on a railroad track, more specifically on any one of the railroad ties and mark that spot as zero, railroad ties to the left would represent negative numbers and railroad ties to the right would represent positive numbers.

The number –7 is 7 units away from zero on the negative side of the railroad track. So, the following is true, |-7| = 7. The number 16 is 16 units away from zero on the positive side of the railroad track. So, |16| = 16. The number 0 is 0 units from zero on the railroad track. So |0| = 0 Therefore, the absolute value of any number is a positive number or zero.

You can find the absolute value of expressions as well. When addressed with this you must treat the absolute value brackets as you would parentheses. You need to simplify everything inside the absolute value brackets by performing all the necessary operations by following the order of operations. Your last step once you have a single number inside the absolute value brackets is to take the absolute value.

.

Two things to watch out for are an opposite sign and/or an operation outside the absolute value brackets. As stated above, simplify everything inside the absolute value brackets by performing all the necessary operations by following the order of operations. Your last step once you have a single number inside the absolute value brackets is to take the absolute value. Once you have taken the absolute value then perform the other necessary operations by following the order of operations from left to right in the expression.

Therefore, the absolute value of any number is positive or zero.

You can also find the absolute value of the expression. When using this process, the absolute value brackets must be treated like parentheses. You need to simplify everything in the absolute value brackets by performing all necessary actions in the order of operations. Once there is a number in the absolute value brackets, the last step is to take the absolute value. .

Two things to note are the opposite of the sign and/or the absolute value of the action outside the parentheses. As described above, everything in the absolute value brackets is simplified by performing all necessary operations in the order of operations. Once there is a number in the absolute value brackets, the last step is to take the absolute value. After getting the absolute values, perform other necessary operations in the order of the left-to-right operations in the expression.

Try and figure these out…

1 |-5|=

2 |9|=

3 |-11.5|=

4 |-127|=

5 |5/10|=

6 |12|=

7 |0|=

8 |-4 +10|=

9 |19 + 2|=

10 |-15 +1 1|=

11 |12 - 85|=

12 |7| +3=

13 |13| - 21=

14 |-4| - 41=

15 13 - |-2|=

16 19 + |-3|=

17 |1 +6| + 5=

18 -9 - 1 + |16|=

19 16 + |-3 - 1|=

20 22 - | 2(-5) + 8|=

Answer Key. Check to see if I made a mistake but I don't think so.

1 |-5|= 5

2 |9|= 9

3 |-11.5|= 11.5

4 |-127|= 127

5 |5/10|= 5/10 or ½ or one half.

6 |12|= 12

7 |0|= 0

8 |-4 +10|= -6

9 |19 + 2|= 21

10 |-15 +1 1|= 4

11 |12 - 85|= 73

12 |7| +3= 10

13 |13| - 21= -8

14 |-4| - 41= -37

15 13 + |-2|= 15

16 19 + |-3|= 21

17 |1 +6| + 5= 12

18 -9 + 1 + |16|= 8

19 16 + |-3 - 1|= 20

20 22 - | 2(-5) + 8|= 20

Congradulations This is the End of this Math Book...

Proof