

The Art of Problem Solving (AOPS)

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Dedicated to
My famma (Aunt) Khuki
My Fupa (uncle) Sadi

Abstract: Yeah!! I touch the milestone of publishing 15 Research paper at the age of 15 . My research publications is now equivalent to my age!! So to celebrate this I am going to write a paper that will help every people to take the feel in math . Basically Teachers in the classroom can't make feelings of math to the student . They always like to tell math is deferent than others . It is a bit harder . Math is not for everyone , it is only for geniuses bla bla..... . This type of stupid telling often decreases the math potential of a student . I have seen many math genius es later fields medal winner was demotivated by listening this type of foolish talking . If you want to learn more about fields medal life at school , then read this authentic Blog : <https://www.lesswrong.com/posts/MsTu3dqf7BnEupoW4/fields-medalists-on-school-mathematics>

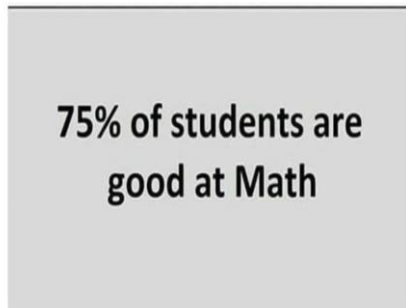
So what is the solution of it . To raise the math potentiality of every primary student . I am going to write this paper , It will be understood by every math haters , and will also rise the interest of primary level or 5th to 6 th grader student s . TO understand this paper , you just need enthusiasm leisure time and just need to know about simple fraction and reasoning

I'st Dangerous Math

Find the Sum Of this Infinite Series :-

$$1/(1 * 2) + 1/(2 * 3) + \dots + 1/(98 * 99) + 1/(99 * 100)$$

After Seeing this most students expression will be like this



I belong to the rest 14%

SRC:<https://memezila.com/75-percent-of-students-are-good-at>

But please wait for a minute and think . ☹️ If you see a big problem like this always always Use the method Divide and conquer .

Like _

Let's add the first two term of this series : And Find some conclusions =>

$$1/(1 * 2) + 1/(2 * 3) = 2/3$$

$$1/(1.2) + 1/(2 * 3) + 1/(3 * 4) = 3/4$$

Again Iterate This process for final and find it's pattern

$$1/(1 * 2) + 1/(2 * 3) + 1/(3 * 4) + 1/(4 * 5) = 4/5$$

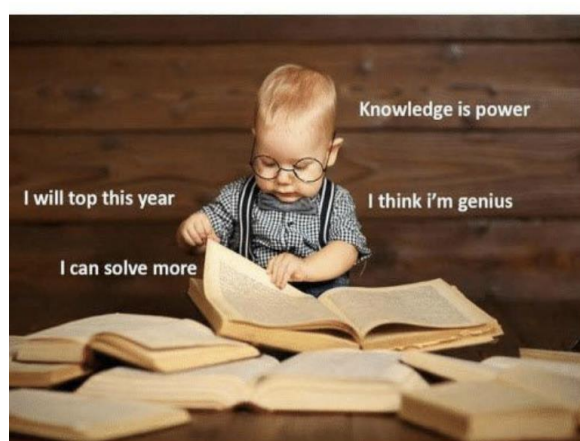
SO DID YOU FIND IT UREKA UREKA !!! I AM ARCHIMEDIS (spelling mistakes)

The general solution of this pattern is then ;

$$1/(1 * 2) + 1/(2 * 3) + \dots + 1/(N - 2) * (N - 1) = (N - 1)/N$$

AFTER FINDING SOLUTION FEELING LIKE THIS





When I accidentally solve two problems of Math

$$\begin{aligned} &1/(3\sqrt{2} + 4) + 1/(4 + \sqrt{14}) + 1/(\sqrt{14} + 2\sqrt{3}) \\ &\quad + 1/(2\sqrt{3} + \sqrt{10}) + 1/(\sqrt{10} \\ &\quad + 2\sqrt{2}) + 1/(2\sqrt{2} + \sqrt{6}) + 1/\sqrt{6} \\ &\quad + 2 = ????????? \end{aligned}$$

Teacher : Hmm !! I think it is not possible

Student : Nope !! It is just a^2-b^2 law

Teacher : What Are you saying I have Done M.sc from Harvard University !!!!!

The above Condition is true in many school and college ! Students are more brilliant than teachers in most reasoning case !!

Buy The way how this is interrelated With A^2-b^2 law !!

Look the first term of the series $1/3\sqrt{2} + 4 = (1/3\sqrt{2} + 4) * (3\sqrt{2} - 4)/3\sqrt{2} - 4 = (3\sqrt{2} - 4)/2$

So apply a^2-b^2 law and sum up the all fractions !!!

$$\begin{aligned} &(3\sqrt{2} - 4)/2 + (4 - \sqrt{14})/2 + (\sqrt{14} - 2\sqrt{3})/2 \\ &\quad + (2\sqrt{3} - \sqrt{10})/2 + (\sqrt{10} \\ &\quad - 2\sqrt{2})/2 + (2\sqrt{2} - \sqrt{6})/2 + (\sqrt{6} \\ &\quad - 2)/2 = (3\sqrt{2} - 2)/2 \end{aligned}$$

THIS SERIES IS CALLED TELESCOPING SERIES !! BECAUSE IT ENDS UP LIKE TELESCOPE S ☞

Abid's Paradox

Ok now I will tell you a true story behind the naming of this paradox . Actually It is made by my friend Abid (Don't fear He is not a math genius ,he accidentally made it) I read in grade :09 of Monipur High School .It was the boring math class . Teachers is doing the fourth chapter of math (I don't want to tell the name of that teacher sorry)) The Inequalities . He writes onto

the board inequalities is same as equalities in doing operation in math . But if you reverse the number then sign changes . If you multiply it by negative integer then also Sign changes —if you———.....

A backbencher student raise the hand and ask the teacher a question . From your statement , we know

$$3 > -1$$

Then if we reverse It it become $1/3 < -1$What !!! A positive integer is less than a negative integer . The teacher shout and said How dare you . I am M.SC in math from Chittagong University . You have no base in math . You don't know how to use it . You come here to disturb the teachers and the student..... . The teacher is screaming . And then bell rings and class finished . I was present at Thai moment and I understand the significance of this question . I go to aid and tell him You have done a wonderful Question But In your text -book some information is missing . Here is real

Law if you reverse the modulo of a number then sign changes . So al equation is right . From today - $[1/3] < [-1] = 1/3 < 1$.

CONCLUSION:

Math Is For Everyone Because It Is Created By Humans Not God . Like Other Subject If You Get Fun With This You Will Be Also A Genius . In Fact Children's Are Mostly Gifted In Math Because When They Are Young They Had No External Pressure . They Can Think Freely . They Can Proof Theorem From Scratch

RESOURCES:

1. Book Goniter Monche Written By Ahmmed Zawad Chowdhury
2. Book Goniter Sopnojatra Written By Ahmed Zawad Chowdhury
3. Inspired By : <https://Artofproblemsolving.Com>
4. Memes Reference Used In Article <https://In.Pinterest.Com/Pin/97249673195302889/>
5. <https://Memezila.Com/75-Percent-Of-Students-Are-Good-At-Math-I-Belong-To-The-Rest-14-Meme-1020>