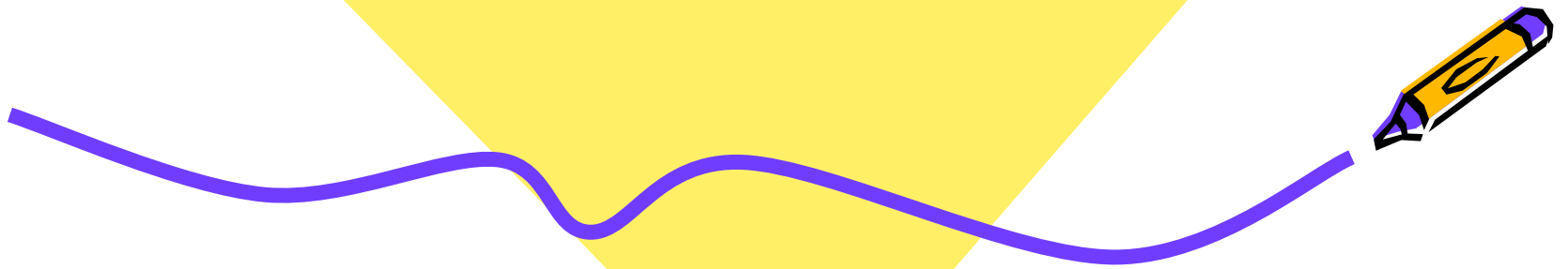




The Eleven Commandments



Colleen Young



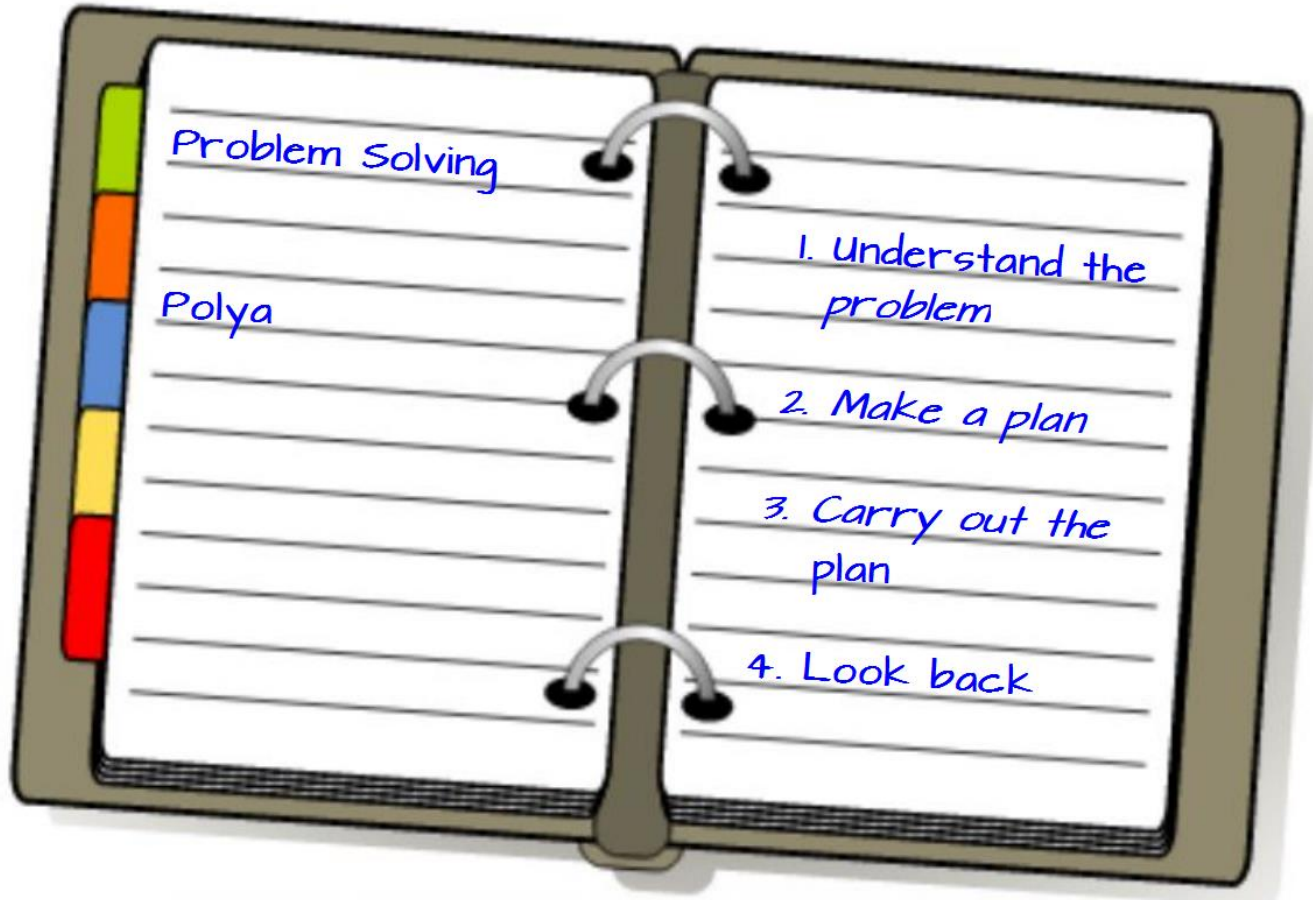
The Eleven Commandments

for mathematicians



1

Thou shalt read thy problem carefully.

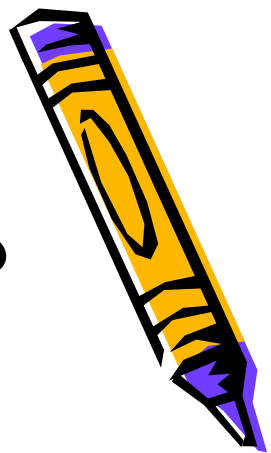


1 Read and understand the problem

How are your problem solving skills?

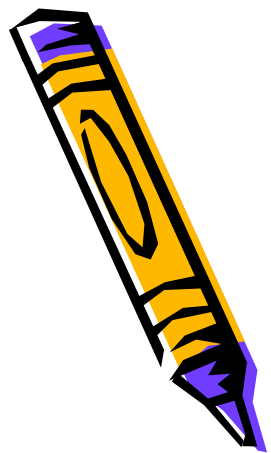
See [this document](#) from The University of California, Berkeley for a succinct guide to Polya's problem solving strategy

For a more detailed guide with examples try [this publication](#) from Arizona State University.



2

Whatever thou doest to one side
of thy equation, do ye also to the
other.



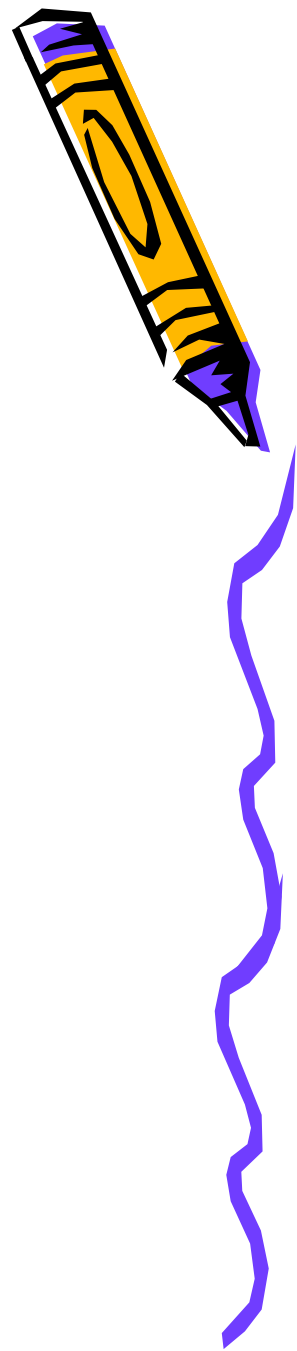
2 How's your Algebra?

There are plenty of resources online to help.

Notes

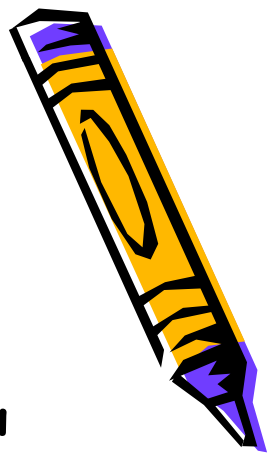
Videos

Reference



3

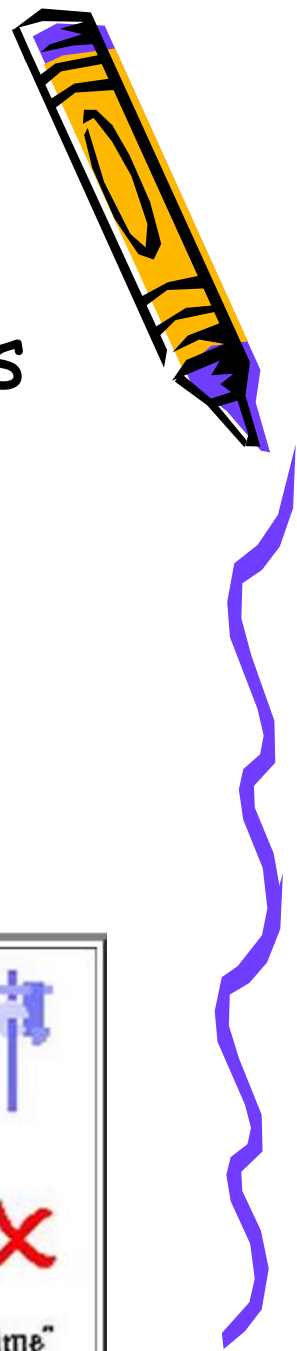
Thou must use thy "common sense",
else thou wilt have flagpoles 9,000
feet high. Yea, even fathers younger
than sons.



3 Always check your work

Are you checking that your answer is sensible?

Are you guilty of making any of the classic mistakes?

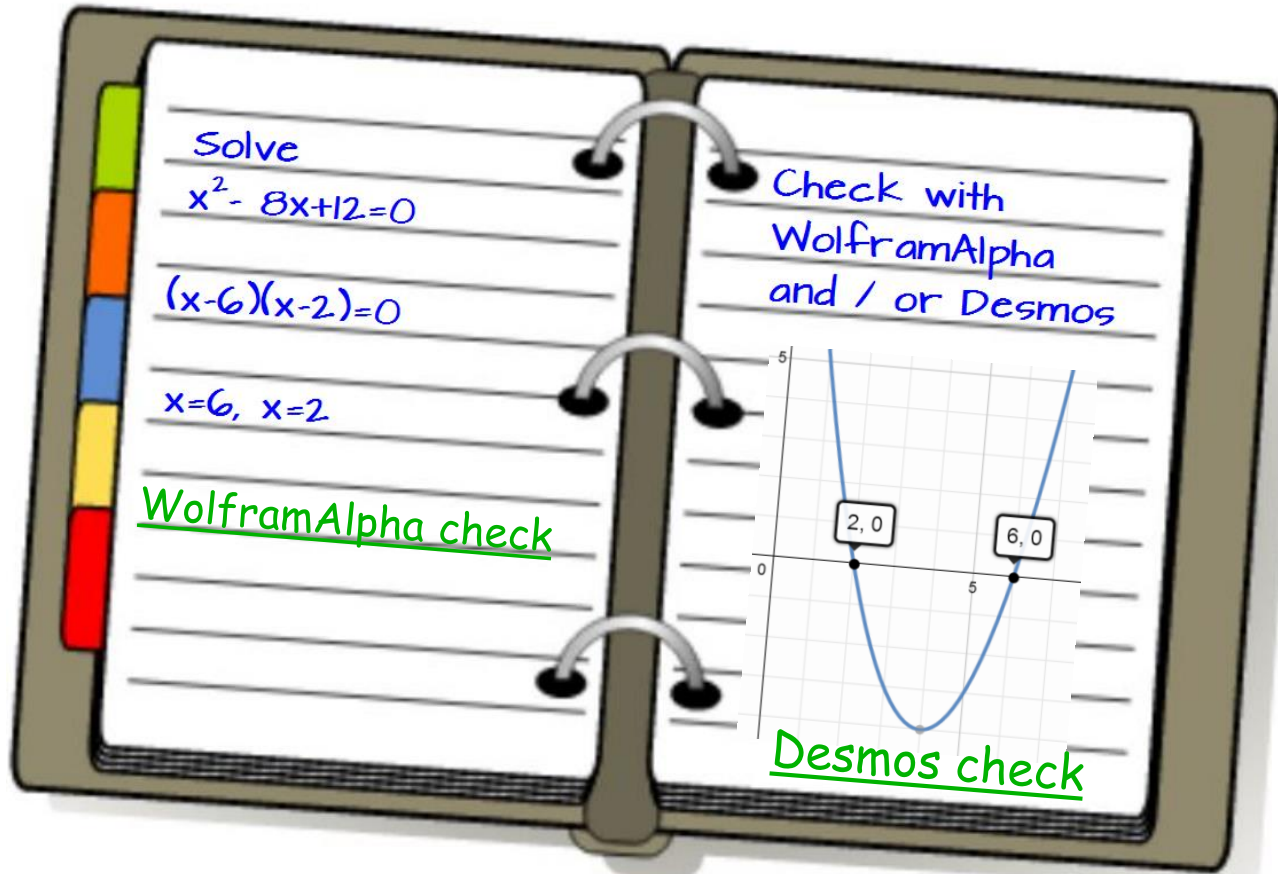


Classic Mistake N°15

1 is a prime number

"Composite Crime"

3 Always check your work

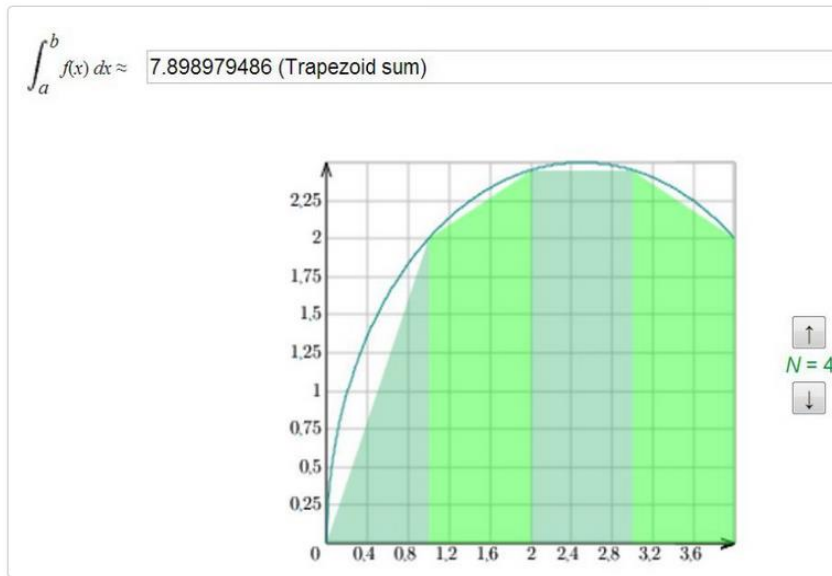
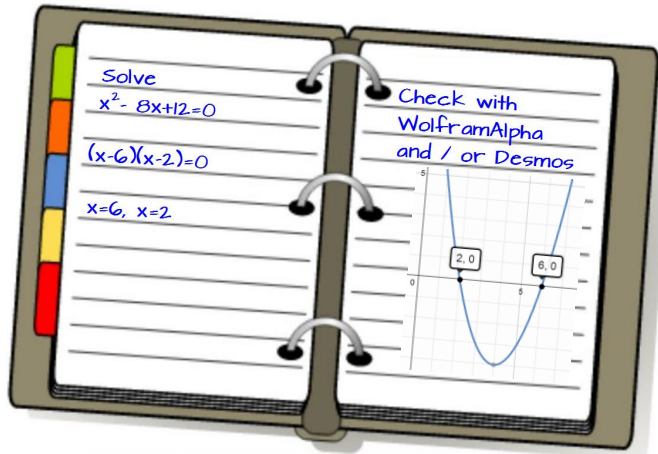


Learn to use WolframAlpha

Learn to use Desmos



3 Always check your work



Numerical Integration – Zweigmedia

WolframAlpha

eigenvectors $\{\{1,0,0\},\{0,0,1\},\{0,1,0\}\}$

Input:

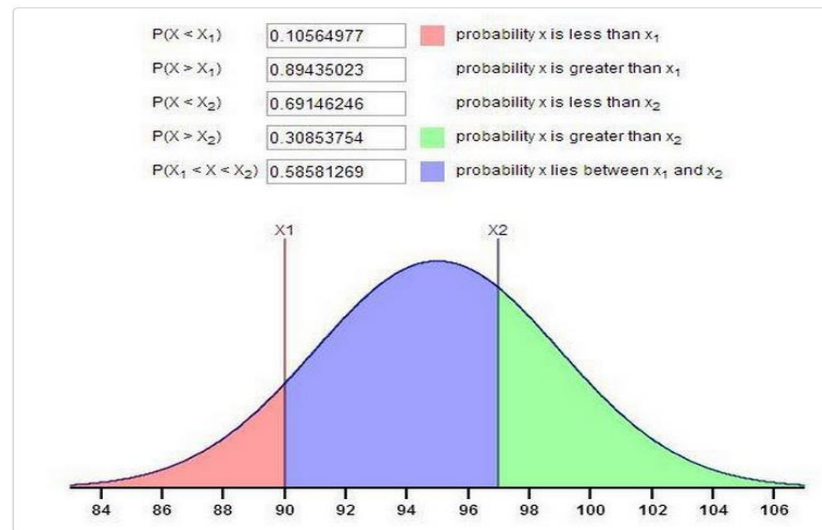
Eigenvectors $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix}$

Results:

$v_1 = (0, -1, 1)$

$v_2 = (0, 1, 1)$

$v_3 = (1, 0, 0)$



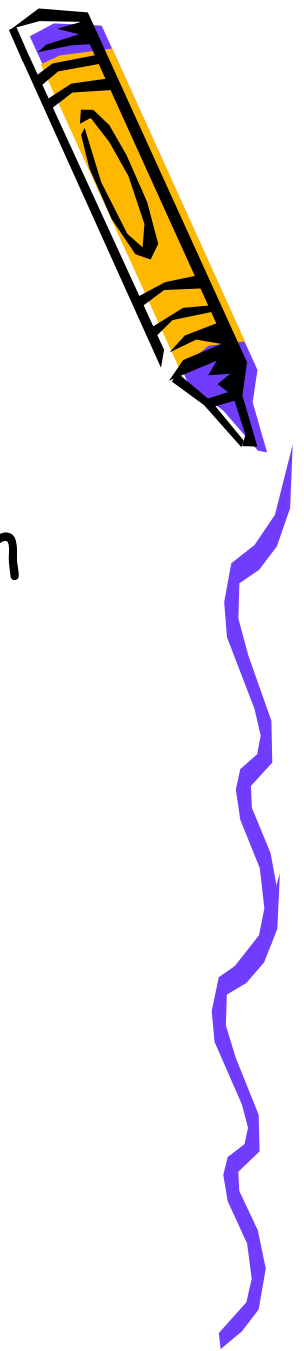
Normal Distribution Calculator – Random Science Tools and Calculators



Calculators & Tools

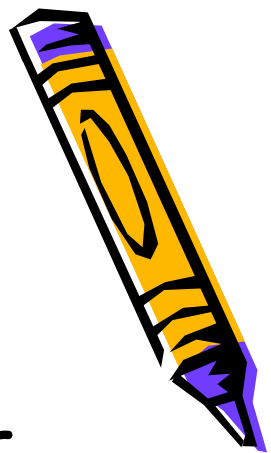
4

Thou shalt ignore the teachings of
false prophets to do all thy work in
thy head.



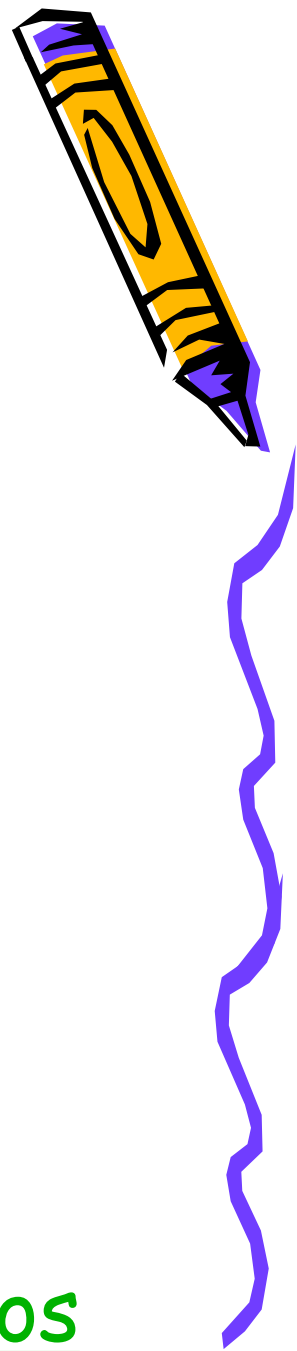
5

When thou knowest not, thou shalt look it up; and if thy search still elude thee, thou shalt ask thy All-Knowing Teacher.



5 Look it up

Never rely on just one source if you are finding a topic tricky, it can be helpful to see explanations and examples written by different authors.

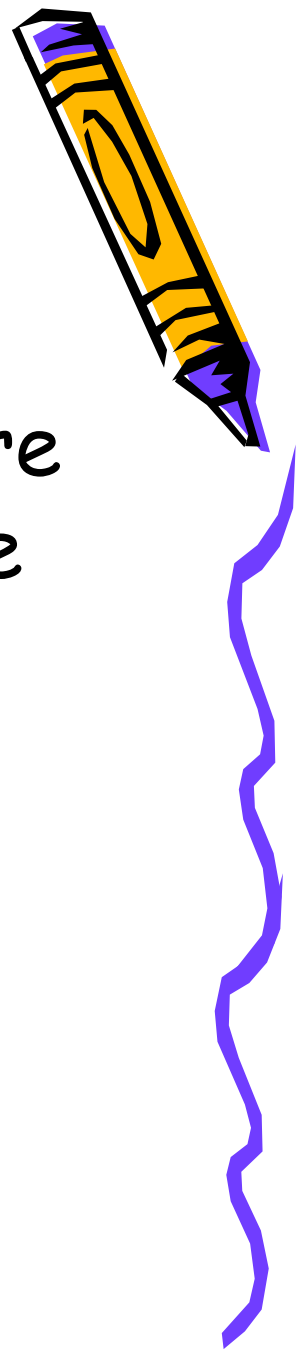


Notes

Videos

6

Thou shalt master each step before putting thy heavy foot down on the next.

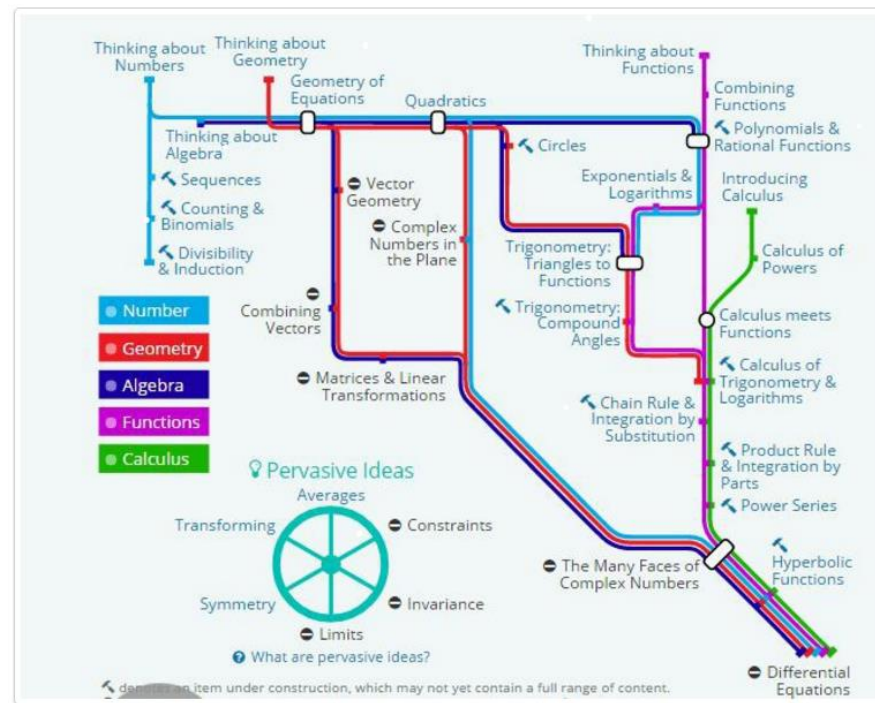


6 Master each step

Try lots of exercises so you are secure in methods.

Try some new and challenging problems.

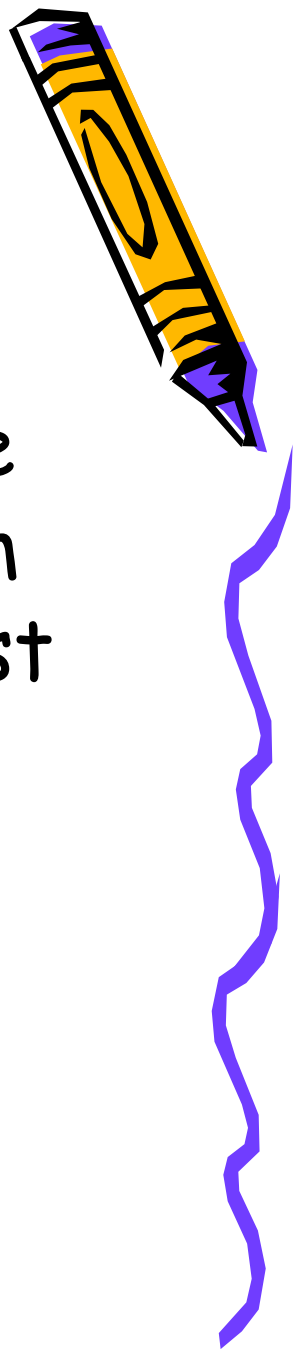
Underground Maths



7

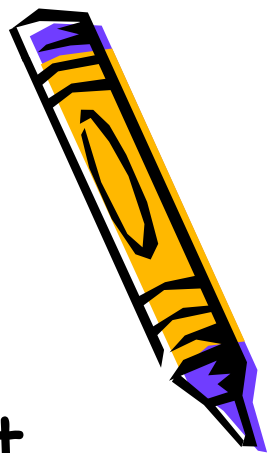
Thy correct answer does not prove that thou hast worked thy problem correctly. This argument convincest none, least of all thy Teacher.

See 10 also.



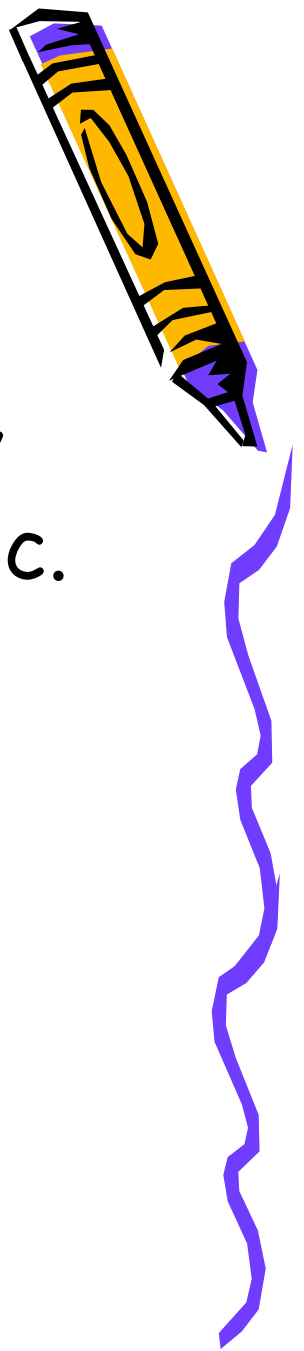
8

Thou shalt first see that thou hast copied thy problem correctly, before bearing false witness that the answer book lieth.



9

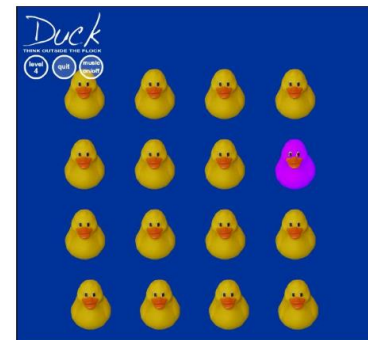
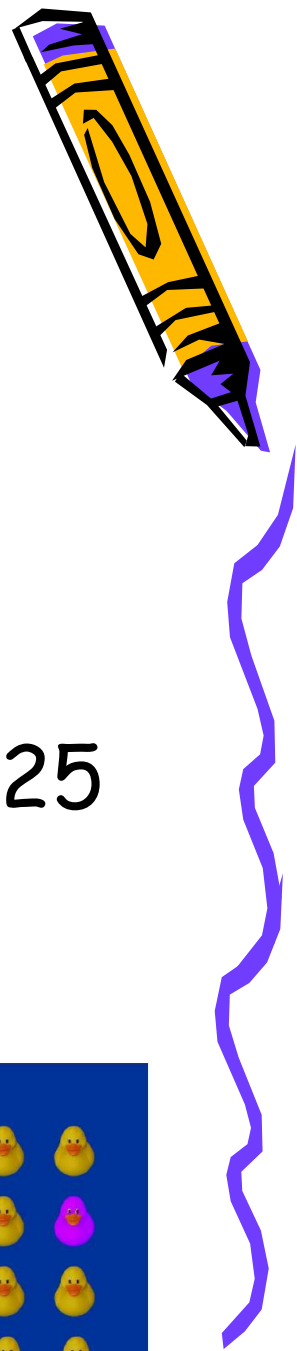
Thou shalt look back even unto thy youth and remember thy arithmetic.



9 Remember all the basics

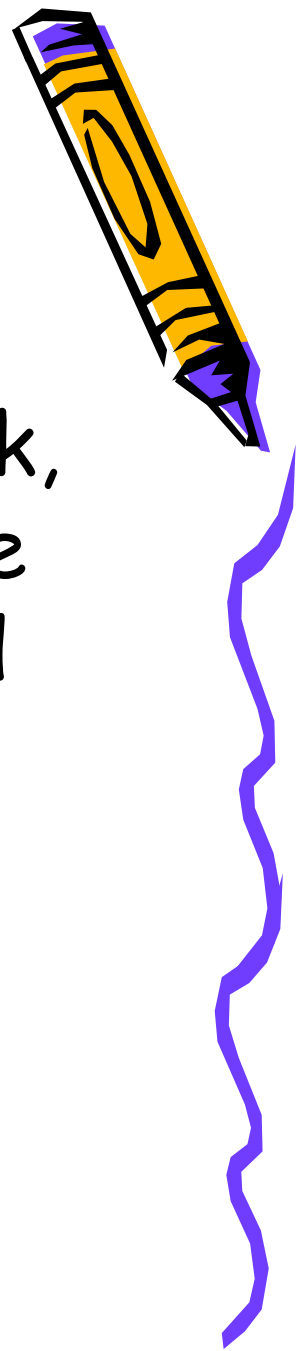
If you want to practise your arithmetic you could play some games!

Available on Math Playground, the 25 levels of Think Outside the Flock will test your thinking skills!



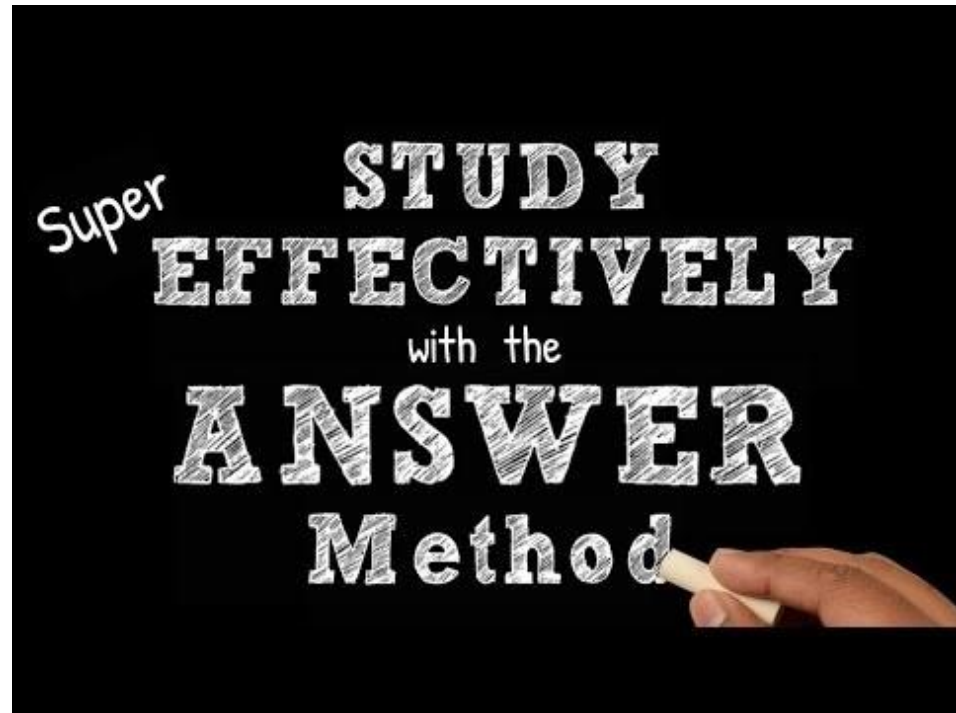
10

Thou shalt learn, read, write, speak,
and listen correctly in the language
of mathematics, and verily A's and
B's shall follow thee even unto
graduation.



10 On Learning Mathematics

Think about *how* you learn, not just what you learn. Have a look at these [Study Strategies from the Learning Scientists.](#)

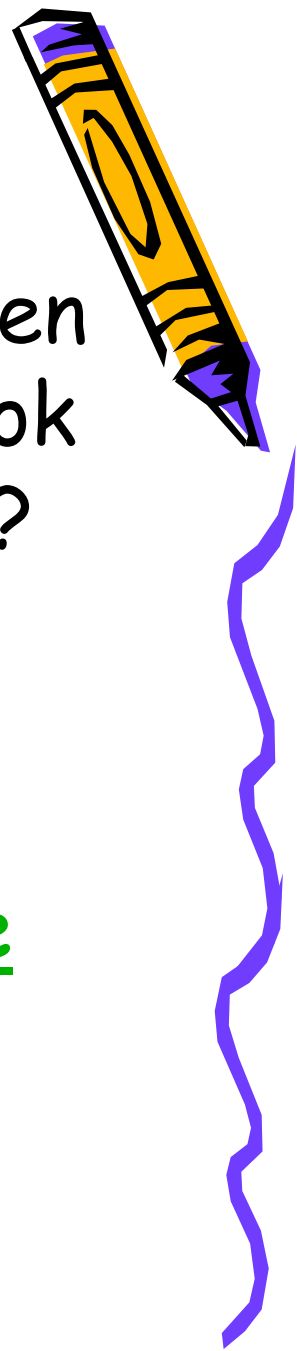


10 Write Mathematics clearly

Do you distinguish carefully between a 1 and a 7 for example? Does 2 look like z or 5 look a bit like a letter s?

From John Kerl see tips for mathematical handwriting,

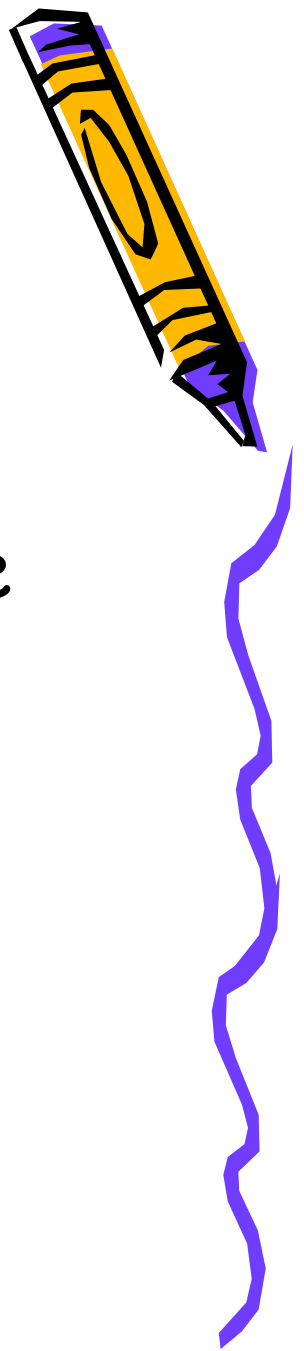
Also have a look at this clear guide to writing Mathematics from Dr Kevin P Lee.



11

My own Maths teacher
(thank you Mr Hind) taught me the
11th commandment...

Thou shalt not divide by zero.



Thank you ...

....to whoever wrote these!

Having trawled the Internet I can find many copies (and variations) but no attribution to the original author.

