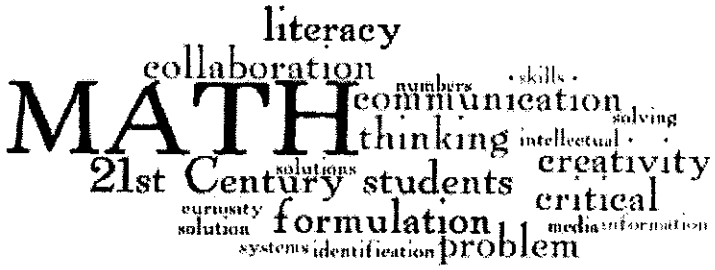
Interview: What can I do with a Mathematics Degree?

http://www.youtube.com/watch?v=HLlxranKf78



Pre-listening. Answer questions with your neighbor.

1) Why have you decided to study maths?
2) Why and where is maths important?
3) What sort of career can you have as a mathematician?
4) What is the difference between vocational and non-vocational degree?

Listen to the talk and answer questions.

1) What is Dr. Chris Good going to explain?

   .....

2) What is the difference between studying engineering and medicine on the one hand and mathematics on the other hand?

   .....

3) Which things he mentioned would not work without mathematics?

   .....

4) What is Dr. Good interested in?

   .....

5) Why do societies need mathematically-literate people?

   .....

The Way I Remember It (Adapted from Křepinská, Houšková, Bubeníková: Rozšiřující materiály pro výuku anglického jazyka, Matfyzpress 2006)

Pre-reading. Try to explain the meaning of these words.

supervisor unique spherical convex function series

reinvent assumption analogy ignorance paper

Reading. 1)Read the text and answer Qs.

1) Why was the writer interested in Zygmund´ s book?
2) Where are the properties of convex functions important?
3) Why was the author forced to invent again the notion of subharmonicity?
4) How did the author´ s results compare with those of F. Riesz?
5) What happened after the author gave a presentation at Duke?
6) What was Plancherel famous for?
7) What was Plancherel´ s relation to Riesz?
8) Why does the writer think that ignorance could be positive? Do you agree?

2) Read the text again. It is in American English. Try to find American words and replace then with British equivalents.

FOCUS A

THE WAY I REMEMBER IT

In the fall of '47 I began to work on a Ph.D. thesis. My supervisor had me start by studying a chapter in Zygmund's book, dealing with uniqueness theorems for trigonometric series. Analogous work had been done for various other systems of functions, but only in one variable, as far as I could find out. I decided to try this problem for series of spherical harmonics. In the one-variable setting, properties of convex functions played a key role. This meant that I needed to find a good analogue of convexity for functions defined on the surface of a sphere. After a few unsatisfactory attempts I was led to reinvent the notion of subharmonicity (without giving it a name). When I found that F. Riesz had proved all the basic properties of subharmonic functions 20 years earlier I felt that I was on the right track. My final results were very similar to the best that were known in the classical case.

I presented this at an AMS meeting at Duke, in April '49. Soon after an abstract of this talk appeared in print, I received an envelope from Zürich, containing a paper published in 1919 by Plancherel, a mathematician who had proved the most fundamental theorem about Fourier transforms. The paper he sent me dealt with the same problem that I had worked on! Fortunately, his results were much weaker than mine, he had to make stronger assumptions, so that the desired conclusions were only proved for a much smaller class of series. (He had preceded Riesz while I had followed him.)

Now here is the point of all this: Had I known of Plancherel's paper, I would probably have been discouraged from tackling this problem. If this famous man could only get such weak results, what am I doing here? Sometimes a little ignorance is a good thing.

(*W. Rudin*)

4. *Fill in the missing British equivalents of the American words:*

area code .....
billion .....
collect call .....
cookie .....
fall .....
flashlight .....
math .....
resumé .....
schedule .....
secretary .....
stove .....

5. *Match the British words in column A with the American ones in column B:*

A	B
a) shop	1) pants
b) quote	2) railroad
c) engaged	3) attorney
d) tube	4) conductor
e) trousers	5) busy
f) railway	6) cite
g) guard	7) subway
h) solicitor	8) store

6. *Read out the following:*

a) $S_p = \dfrac{a - aq^n}{1 - q} \quad (q \neq 1)$

b) $0 < \operatorname{ctn}^{-1} x < \pi$

c) $\lim x_a = a$

d) $x_n \to a$

e) $n > \dfrac{\log \varepsilon}{\log |q|}$

f) $0 < 1 - \dfrac{\sin x}{x} < 1 - \cos x$

g) $1 < \sqrt{1 + \dfrac{1}{n}} < 1 + \dfrac{1}{n}$

h) $\dfrac{\sqrt{1+x} - 1}{x} = \dfrac{1}{\sqrt{1+x} + 1}$

7. *Rewrite these expressions into mathematical symbols:*

a) square brackets _____

b) parentheses, round brackets _____

c) braces _____

d) X is an empty set _____

e) M is the set with the elements 2, 4, 6 _____

f) Capital *l* minus *l* is equal to *d* _____

g) The *n*th root of *c* to the *m*th equals *c* to the power of *m* over *n* _____

h) *b* to the power of minus *n* is equal to one over *b* to the *n*th _____

i) The limit of *f* of *x* as *x* tends to *x* nought is not equal to *f* of *x* nought _____

j) The limit, for delta *x* tending to zero, of the sum of *f* of *x* sub *k* delta *x* taken from *x* sub *k* equal to *a* to *x* sub *k* equal to *b* minus delta *x* equals _____

the integral from *b* to *a* of small *f* of *x* d *x* equals _____

capital f of *x* between the limits *a* and *b* _____

k) *y* equals the negative square root of the difference *r* squared minus *x* squared _____