Interview: What can I do with a Mathematics Degree?

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

The Quigmans By Buddy Hickerson
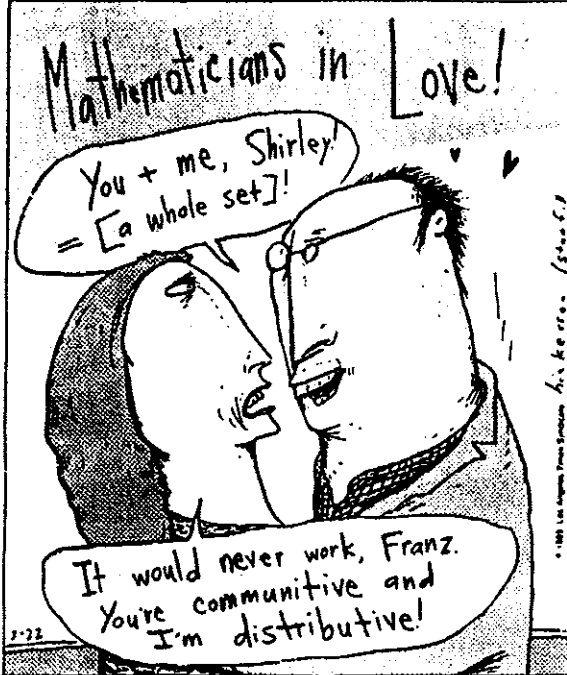
Pre-listening. Answer questions with your neighbor.

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 gong to explain?

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

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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 History of 2 + 2 = 5

by Houston Euler

From: Mathematics Magazine, December 1990.

Reading

1) Scan the text and find the names of famous mathematicians. What do you know about them?

....

....

....

2) Find these expressions in the text, try to explain them. Indicate the paragraph in which they appear.

a) scribe service ....

b) cautious rendition ....

c) utility companies ....

d) cover-up ....

e) wider margins ....

f) tying knots ....

g) decades of great confusion ....

h) rigorous argument ....

1) Many cultures, in their early mathematical development, discovered the equation 2 + 2 = 5. For example, consider the Bolb tribe, descended from the Incas of South America. The Bolbs counted by tying knots in ropes. They quickly realized that when a 2-knot rope is put together with another 2-knot rope, a 5-knot rope results.

2) Recent findings indicate that the Pythagorean Brotherhood discovered a proof that 2 + 2 = 5, but the proof never got written up. Contrary to what one might expect, the proof's nonappearance was not caused by a cover-up such as the Pythagoreans attempted with the irrationality of the square root of two. Rather, **they** simply could not pay for the necessary scribe service. They had lost **their** grant money due to the protests of an oxen-rights activist who objected to the Brotherhood's method of celebrating the discovery of theorems. Thus it

was that only the equation 2 + 2 = 4 was used in Euclid's "Elements," and nothing more was heard of 2 + 2 = 5 for several centuries.

3)Around A.D. 1200 Leonardo of Pisa (Fibonacci) discovered that a few weeks after putting 2 male rabbits plus 2 female rabbits in the same cage, he ended up with considerably more than 4 rabbits. Fearing that too strong a challenge to the value 4 given in Euclid would meet with opposition, Leonardo conservatively stated, "2 + 2 is more like 5 than 4." Even **this** cautious rendition of his data was roundly condemned and earned Leonardo the nickname "Blockhead." By the way, his practice of underestimating the number of rabbits persisted; his celebrated model of rabbit populations had each birth consisting of only two babies, a gross underestimate if ever there was one.

4)Some 400 years later, the thread was picked up once more, this time by the French mathematicians. Descartes announced, "I think 2 + 2 = 5; therefore it does." However, others objected that his argument was somewhat less than totally rigorous. Apparently, Fermat had a more rigorous proof which was to appear as part of a book, but **it** and other material were cut by the editor so that the book could be printed with wider margins.

5) In the early to middle 1800's, 2 + 2 began to take on great significance. Riemann developed an arithmetic in which 2 + 2 = 5, paralleling the Euclidean 2 + 2 = 4 arithmetic. Moreover, during **this** period Gauss produced an arithmetic in which 2 + 2 = 3. Naturally, there ensued decades of great confusion as to the actual value of 2 + 2.

6) Faced with **this** profound and bewildering foundational question of the value of 2 + 2, mathematicians followed the reasonable course of action: **they** just ignored the whole thing. And so everyone reverted to 2 + 2 = 4 with nothing being done with its rival equation during the 20th century. There had been rumors that Bourbaki was planning to devote a volume to 2 + 2 = 5 (the first forty pages taken up by the symbolic expression for the number five), but those rumor remained unconfirmed. Recently, though, there have been reported computer-assisted proofs that 2 + 2 = 5, typically involving computers belonging to utility companies. Perhaps the 21st century will see yet another revival of this historic equation.

3) The writer is apparently making fun of these mathematicians. What was wrong with these proofs?

4) Linking ideas. Read the text again and explain what the words in bold print refer to.

    a) they ....
    b) they ....
    c) their ....
    d) this ....
    e) it ....
    f) this ....
    g) this ....
    h) they ....